FINAL REPORT

Rocky Mountain Arsenal

DIOXIN/FURAN TIER I Field Study Results in Wildlife Tissues

June 2001

Prepared by the

Rocky Mountain Arsenal (RMA)
Biological Advisory Subcommittee

Prepared for the

RMA Committee

ROCKY MOUNTAIN ARSENAL

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RESULTS IN WILDLIFE TISSUES
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ACRONYMS

Ah-R	Aryl-Hydrocarbon Receptor
ANOVA	Analysis of Variance
BAS	Biological Advisory Subcommittee
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminant of Concern
EPA	U.S. Environmental Protection Agency
ln	Natural Logarithm
LQCP	Laboratory Quality Control Program
MATC	Maximum Allowable Tissue Concentration
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MRI	Midwest Research Institute
MSU	Michigan State University
NOAEL	No Observed Adverse Effect Level
NPL	National Priorities List
OCP	Organochlorine Pesticide
p	Statistical Significance
PARCC	Precision, Accuracy, Representativeness, Completeness, and Comparability
PAH	Polycyclic Aromatic Hydrocarbon
PCA	Principal Components Analysis
PCB	Polychlorinated Biphenyl
PCDD	Polychlorinated Dibenzo-P-Dioxins
PCDF	Polychlorinated Dibenzofurans
PE	Performance Evaluation
pg	Picogram (1×10^{-12} g)
pg/g	Picograms per gram
ppt	Part per trillion (equal to 1 pg/g)
QA/QC	Quality Assurance/Quality Control
RMA	Rocky Mountain Arsenal
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TCDD-EQ	TCDD equivalents (determined by H4IIE-luc bioassay)
TEF	Toxicity Equivalency Factor
TEQ	Toxic Equivalent, expressed as a relative concentration of TCDD
USFWS	U.S. Fish and Wildlife Service
ww	Wet Weight
α	Alpha
β	Beta
%	Percentage
μg	Microgram
>	Greater Than
<	Less Than

EXECUTIVE SUMMARY

Dioxins and furans were first detected at the Rocky Mountain Arsenal (RMA) by a Colorado Department of Public Health and Environment (CDPHE) study of animal tissues and waste materials collected from the post. The RMA Dioxin and Furan Tier I Field Study (the study in this report) was conducted in response to concern about the possibility of dioxins and furans posing an excess risk to wildlife and possibly to people exposed to soils at the RMA. In an overall phased approach, the Tier I Field Study was designed to determine whether dioxins and furans were contaminants of concern (COCs) at the RMA. A COC is a chemical that has both a source above background, and a potential for release from a contaminated site. As part of follow-on investigations at the RMA to reduce uncertainties in residual risks to wildlife, as mandated by the CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) 1996 Record of Decision (ROD), the Biological Advisory Subcommittee (BAS) designed this study.

This study evaluated whether concentrations of polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) were greater in wildlife tissues on the RMA than at off-post reference locations. The study also included comparisons of patterns and distributions of types of PCDD/F congeners among on-post and off-post reference samples to assess the potential for an RMA-specific pattern, in the event that statistically significant differences between on-post and off-post groups were not observed in this Tier 1 Screening Study. If PCDD/Fs were found to be greater on the RMA, or if the patterns of PCDD/Fs were different, then further investigation would be considered to better understand the nature, extent, and magnitude of the contamination.

Three indicator species were chosen for this Tier I Screening Study: the American kestrel, the great horned owl, and the common carp. Controlled sample collections of carp and kestrel eggs were carried out, while collection of livers from great horned owls relied on fortuitously (widespread time and uncertain residency) collected samples. These species were selected to reasonably represent terrestrial and aquatic species that would be expected to integrate exposure to PCDD/Fs over discrete areas and prolonged times. Wildlife were collected, rather than soil, to increase the likelihood of finding potential PCDD/F sources at the RMA. Use of wildlife as biomonitors is generally a more efficient method of screening for bioaccumulative contaminants over large spatial areas, such as at the RMA.

Kestrels were selected because egg concentrations had been shown to correlate with gradients of organochlorine pesticide (OCP) concentrations in soil on-post. Great horned owls were selected because of detection of PCDD/Fs in owls analyzed for the prior CDPHE study and because their diet differs from that for kestrels. Carp were selected to represent exposure to aquatic organisms. A total of 46 American kestrel eggs, 26 great horned owl livers, and 18 samples of carp eggs were analyzed for possible elevations of PCDD/Fs from the RMA tissue samples when compared to samples from representative off-post reference areas in the vicinity of the RMA.

Samples were analyzed for a) toxic equivalent concentrations (TEQ), based on relative potencies compared to 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD or TCDD), of 29 PCDD/F congeners that were measured by trace chemical methods, and b) 2,3,7,8-TCDD biologically equivalent concentrations (TCDD-EQ) that were measured by a cell culture bioassay that

integrates the activity of all TCDD-like chemicals. The TEQ instrumental analysis included measurements of 12 TCDD-like polychlorinated biphenyls (PCBs) for purposes of reconciling mass balances of TEQ concentrations with TCDD-EQ responses, since the TCDD-EQ can respond to any chemical with aryl-hydrocarbon receptor (Ah-R) binding activity, including agonists and antagonists.

A Decision Procedure was designed a priori to evaluate the results and for the proper integration of all the results of the different analyses for the three indicator species. Additional samples were analyzed for quality assurance/quality control purposes, and all data were validated to ensure adequate data usability and acceptable compliance with the RMA Data Quality Objectives as specified in the sampling and analysis plan (SAP) for the study.

American Kestrel Results and Conclusions

The major findings of the American kestrel egg study were:

- Concentrations of PCDD/Fs, determined chemically or by the bioassay, were not greater in tissue samples from the RMA than in samples collected from off-post reference areas.
- There were also no significant differences between concentrations in kestrel eggs collected in the core area (Sections 1, 2, 25, 26, 35, and 36 in **Figure 2**) of the RMA and those collected from the peripheral areas of the RMA.
- No unique pattern of PCDD/F congeners that would distinguish on-post samples from off-post reference samples could be identified. However, pattern analysis was complicated by the fact that detection limits for PCDD/F congeners varied substantially among samples, and results and conclusions of the pattern analysis should be interpreted with caution.

The conclusion from the analyses of kestrel eggs was that there is no indication of exposure, beyond background concentrations, to a possible source of PCDD/Fs at the RMA.

Great Horned Owl Results and Conclusions

The major findings of the great horned owl liver study were:

- Concentrations of PCDD/Fs appeared to be substantially elevated in the livers of the four adult great horned owls that were collected on the RMA; however, three of these adult owls were collected in an emaciated (severely thin) condition stemming from a probable diagnoses of dieldrin poisoning or infectious disease. Such a weight loss has been found to cause a translocation of body burdens of PCDD/Fs to the liver, causing artificially higher concentrations to be detected. Therefore, concentrations were adjusted downward. When this was done, the concentrations observed were more similar to those expected had the owls not been emaciated. When the concentrations of PCDD/Fs in owl livers corrected for weight loss were compared, concentrations in adult owl livers from the RMA were slightly greater than those from off the RMA based on borderline (equivocal based on weight of evidence, see **Tables A** and **16**) for statistical differences.
- There were no statistically significant differences between concentrations of TEQs in livers of juvenile owls collected on the RMA and those collected off the RMA.

- The greatest observed concentrations of PCDD/Fs in all age classes (adults, unknown, and juveniles) were found in owls collected in the vicinity of South Plants. However, the relevance of this observation is uncertain due to confounders such as small sample size, deficits in spatial representation, and uncertain residency status for adult owls that can range off-post.
- The results of the bioassay analyses were consistent with the results of PCDD/F TEQs as determined by chemical analyses, in that the owls containing the greatest concentration of TEQs also contained the greatest concentrations of TCDD-EQ.
- The pattern analysis indicated no evidence that a specific PCDD/F congener profile is present in on-post owl samples compared to off-post reference samples. However, the sample size was likely too small to have detected differences in patterns even if they existed.

The results for owls are statistically inconclusive, in general, because of small sample sizes and limitations on the usability of the data that resulted from the fortuitous manner of sample collections, a lack of adequate spatial representativeness of the samples, emaciation of on-post adult owls, and the lack of agreement between results for adults and juveniles. Based on parametric statistical analyses, concentrations of PCDD/Fs appear to be significantly greater in livers of the four adult great horned owls collected on the RMA. However, non-parametric statistical analyses of the same data did not indicate a difference between concentrations of PCDD/Fs. Thus, results are equivocal for owls but suitable for Tier I screening purposes. Furthermore, when one considers exposures from future land uses of the central area of the RMA where greater concentrations were found in owl livers, this exposure pathway is anticipated to be substantially diminished as co-located sources will be minimized or eliminated through remediation.

Carp Results and Conclusions

The major findings of the carp study were:

- The concentrations of PCDD/Fs were very low, near the method detection limit (MDL) of 1 to 2 picograms TEQ/gram parts per trillion wet weight for all samples both on-post and off-post.

- The statistical power of the analyses was less than required for valid comparisons, due largely to the small sample size of off-post fish, but the concentrations of PCDD/Fs measured in the fish from on-post work were as low as background concentrations observed in off-post reference locations, as well as similar to background concentrations measured in national and global surveys (EPA 1992, Buckland et al. 1998).

The conclusion from the analyses of carp eggs was that there was no indication of exposure to a potential source of PCDD/Fs at the RMA. Concentrations of PCDD/Fs in the carp eggs were sufficiently low in both on-post and off-post locations that further analysis is not warranted.

Risk Analysis

Of the three species evaluated, only the adult great horned owls may have been at some level of higher risk from exposures to PCDD/F at the RMA, based on comparisons of concentrations in liver to predetermined maximum allowable tissue concentration (MATC) values. It should be noted that some owls collected from off-post reference locations also had concentrations of PCDD/Fs exceeding the MATC values. It is uncertain whether there were any incremental (in addition to dieldrin related) or excessive risks to adult owl populations from over-exposures to PCDD/Fs at the RMA because adult on-post owls were only slightly more exposed than off-post adult owls.

Conclusions

The BAS concludes from this Tier I Screening Study that there is no evidence to indicate a large bioavailable source of PCDD/Fs on the RMA. There is also insufficient evidence to indicate that PCDD/Fs are definitely COCs at the RMA; however, the data collected from the chemical analysis of livers from great horned owls found in the South Plants area suggests slightly greater adjusted concentrations of PCDD/Fs in liver tissue when compared to owls from most other sampled locations. In addition, two owls from the earlier CDPHE study (EcoLogic 1996) were collected from the same core RMA area and also had relatively great concentrations of PCDD/Fs.

Furthermore, the corresponding dioxin soil study (EPA 2000a) results showed similar patterns of localized elevations of PCDD/Fs in the same core RMA area, as indicated by the wildlife tissues, but not in soils from peripheral locations from the RMA (EPA 2000b). Thus, multiple lines of evidence suggest a localized, low magnitude source of PCDD/Fs in soil and tissue media in the central RMA *core* area of the former South Plants. This area is currently being remediated, and it is the opinion of the BAS that these activities will remove the likely source of these chemicals and should eliminate further exposures along with future risks.

The BAS concludes that the available data and analyses, in consideration of the RMA remediation plans, are sufficient to support the decision that exposure pathways to PCDD/Fs from possible RMA sources will be minimized or eliminated, thus eliminating unacceptable potential risks from these chemicals. The ongoing U.S. Fish and Wildlife Service Biological Monitoring Program could also be used to confirm the effectiveness of the remedy. However, there is a reasonably high degree of certainty that future exposures and risks to wildlife and people at the RMA will be in the low range of local background levels.

1.0 INTRODUCTION

This report presents the evaluation and synthesis for results from different analytical techniques and statistical procedures for the Rocky Mountain Arsenal (RMA) Dioxin/Furan Tier I Field Study. The Tier I Field Study (the study in this report) was conducted in response to concern about the possibility of dioxins and furans posing an excess risk to wildlife and possibly to people exposed to soils at the RMA. In an overall phased approach, the Tier I Field Study was designed to determine whether dioxins and furans were contaminants of concern (COCs) at the RMA. A COC is a chemical that has both a source above background, and a potential for release from a contaminated site. As part of follow-on investigations at the RMA to reduce uncertainties in residual risks to wildlife, as mandated by the CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) 1996 Record of Decision (ROD), the Biological Advisory Subcommittee (BAS) designed this study.

The Tier I Field Study was conducted as part of a possible two-phased program to resolve the three decisions, posed as questions below, that are outlined in the final (draft prepared prior to sampling) Dioxin/Furan Tier I Field Study Sampling and Analysis Plan (SAP) (BAS 2000).

Question 1: *Are polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) COCs at the RMA?*

Question 2: *What is the incremental risk to biota caused by the presence (if found) of PCDD/Fs at the RMA?*

Question 3: *If determined to be COCs, do PCDD/Fs pose unacceptable ecological risk, as defined by Superfund health-protective criteria (e.g., population sustainability and community integrity), to the RMA populations?*

To begin to address the above three questions, the Tier I Field Study was designed to determine whether PCDD/F concentrations are greater on-post compared to locations off-post. A Decision Procedure was developed to formalize the methods to be used for evaluating the chemical residue and H4IIE-luc bioassay data on PCDD/Fs in samples of wildlife tissues.

The Tier I Field Study program involved the analysis of American kestrel eggs, great horned owl livers, and carp eggs that were collected on the RMA and surrounding off-post reference areas for the main purpose of screening for higher exposures to PCDD/Fs at the RMA areas. The BAS agreed that the primary receptors of interest for biomonitoring of PCDD/F exposure are raptors because of their greater bioaccumulative potential, previously detected concentrations of PCDD/Fs in great horned owl tissues in a study conducted by the State of Colorado (EcoLogic 1996), and because they are resident species of the RMA and surrounding areas. Additionally, great horned owl specimens were also readily available from the U.S. Fish and Wildlife Service (USFWS) fortuitous specimen program, and the kestrels were already being monitored by USFWS for organochlorine pesticide (OCP) accumulation. The same species may or may not be relevant for phase II work.

1.1 History of the RMA

The RMA is a 27-square-mile U.S. Army facility located northeast of Denver, Colorado (illustrated below). The RMA was established in 1942 to manufacture chemical warfare agents and other agent-filled munitions, and to produce incendiary munitions for use in World War II. All manufacturing plants and associated facilities were located in the center of the 17,000-acre post. Production at the center of the RMA had little effect on the wildlife in the surrounding buffer zones. These outlying areas provided undisturbed, formerly agricultural, habitat for many species of wildlife.

During World War II, mustard gas and chemical munitions were manufactured at the RMA. During the 1950s, Sarin nerve agent was produced. From the 1950s through the 1980s, obsolete and deteriorating ordnance was demilitarized either by neutralizing the contents and burning the remains or by controlled detonation and open burning. Rocket fuel was prepared and stored at the RMA between 1961 and 1982.

Following World War II, portions of the RMA were leased to private industry, primarily for the production of pesticides. Nine companies conducted manufacturing or processing operations in South Plants between 1946 and 1982. The two major leasees of facilities in South Plants were Julius Hyman and Company (Hyman) (1947–1954) and the Shell Chemical Company (Shell) (1954–1982).

Hyman manufactured the chlorinated pesticides aldrin, dieldrin, and chlordane, and also manufactured or brought to the RMA the feedstock chemicals used in manufacturing these products. The feedstock chemicals included hexachloropentadiene, bicycloheptadiene, dichloropentadiene, cyclopentadiene, hydrogen peroxide, acetylene, and chlorine. In 1954, Hyman merged with Shell. Following the merger, Shell leased and constructed additional facilities in South Plants. Shell produced chlorinated hydrocarbon insecticides, organophosphate insecticides, carbamate insecticides, herbicides, and soil fumigants at the facilities in South Plants. No 2,4,5-T or 2,4-D herbicide products, which can contain dioxins and furans, were reportedly produced at the RMA.

Chemical byproducts from these various activities were introduced into the environment at the RMA. Contamination ensued primarily through the burial or surface disposal of solid wastes, discharge of wastewater to unlined or asphalt-lined basins, and leakage of wastewater and industrial effluents through demilitarization activities, routine application of pesticides, and accidental chemical spills, and other releases.

In 1968, the U.S. Army Materiel Command requested recommendations from the National Academy of Science on chemical agent disposal methods. Beginning in 1975, the primary mission of the Army at the RMA was to demilitarize and dispose of obsolete chemical munitions. Shell Chemical continued to lease production areas until 1982, after which all production ceased. In 1980, the mission of the RMA was further refined to direct the disposal of chemical agents and hazardous materials, and decontamination and cleanup of the installation. In 1988, the Secretary of the Army placed the RMA on inactive status and announced that the sole mission of the RMA was cleanup of hazardous contamination. **The illustration on the next page shows the location of the RMA in relation to the Denver Metropolitan area.**

PDF Illustration of RMA in relation to the Denver Metropolitan area can be found on the Web site

The RMA was placed on the EPA National Priorities List (NPL) in 1987 and is currently being cleaned up under the authority of CERCLA Act of 1980 and the Superfund Amendments and Reauthorization Act of 1986 (SARA). In 1996, the on-post ROD, which specifies how the RMA will be cleaned up, was signed (FWENC 1996). In October 1992, in conjunction with the future goal of beneficial public use and in recognition of the unique urban wildlife resources and habitat provided by the RMA, President George Bush signed the RMA National Wildlife Refuge Act. This act designates most of the RMA to become a National Wildlife Refuge following U.S. Environmental Protection Agency (EPA) certification that requires remedial actions are appropriately completed to prevent excess site risks.

1.2 Study Background

Based on concerns about the possible presence of PCDD/Fs on the RMA and their availability for exposure to wildlife, the Colorado Department of Public Health and the Environment (CDPHE) sponsored the analysis of Basin F waste and biota samples available from the RMA. The samples were analyzed for trace organic and inorganic compounds, including PCDD/Fs, arsenic, and mercury (EcoLogic 1996). The independent contract laboratory was not required to meet the Data Quality Objectives and quality assurance (QA) procedures mandated for data collected in other RMA studies, such as was required in this current study, and thus the data were not appropriate for confident decision-making purposes. Results of these analyses are summarized in **Appendix** A.

A series of drums containing wastes from the former Basin F were sampled. In three of the four drums analyzed, PCDD/Fs were not measurable above the method detection limit (MDL) of 200 to 300 picograms per gram (pg/g, equivalent to parts per trillion [ppt]). Only three congeners of 17 analyzed were detected in these three waste samples. These were the relatively ubiquitous, higher chlorinated PCDD/F congeners with low toxicity. The fourth waste sample had detection limits approximately 10 times lower than the other three. In this sample, 14 of 17 congeners were detected resulting in an estimated total toxic equivalent (TEQ) concentration of 78 pg/g.

The biota samples were collected from dead animals found on the RMA from 1989 through the end of 1991. The biota samples that were analyzed by the CDPHE study were: three great horned owls, one red-tailed hawk, one 13-lined ground squirrel, three deer mice, and one brown bat. The PCDD/Fs found in Basin F waste and in some of the biota samples helped lead to the current Tier I Field Study. The BAS was directed by the RMA Committee to conduct a more comprehensive investigation of the PCDD/F issues in accordance with the RMA On-Post ROD, Section 6.2.4.3, Continuing Biological Studies (FWENC 1996). The BAS recommended focusing first on potential exposure to wildlife as bioindicators, rather than directly analyzing many expensive soil samples at the RMA.

In pursuing the RMA Committee's directive, the BAS decided on a phased scientific approach. The overall purpose of the PCDD/F study was to determine if concentrations of PCDD/Fs in representative biota samples collected on the RMA were significantly greater than those in comparable samples from off-post reference sites. Besides achieving this purpose, PCDD/Fs were also evaluated for their potential to be a COC, by comparing levels and patterns of PCDD/Fs found in biological tissues collected from the RMA and from off-post reference areas. The BAS agreed to conduct an initial PCDD/F screening study (Tier I Field Study) of wildlife

tissue exposure, the results of which would be used to assess whether further sampling or other studies (subsequent tiers) would be needed to achieve the aforementioned purposes; i.e., refer to the three risk decision questions at the beginning of this introduction section.

A Decision Procedure was designed (**Appendix** B) to provide statistical interpretations of concentrations of the 17 PCDD/Fs and 12 polychlorinated biphenyls (PCBs) with Ah-R agonist activity, and to evaluate criteria for conclusions about the possible outcomes of combinations for various results from the testing of specific hypotheses. This Decision Procedure was used to assess whether defensible risk-based decisions could be made with the Tier I Field Study data, or if not, whether additional analysis of other biota samples and possibly abiotic studies would be needed to support sound remedial decisions at the RMA.

2.0 SAMPLE COLLECTION PROTOCOL

The information for the collection and handling of all species for this Tier I Field Study is discussed in detail in Section 3.1 of the SAP (BAS 2000). The information below is a synopsis of the plan to assist in interpretation of the data.

2.1 Species Sampling Procedures

Three indicator species were chosen for this study: American kestrel, great horned owl, and carp. Controlled sample collections of carp and kestrel eggs were carried out, while collections of the great horned owls relied on more variable fortuitous samples. Forty-six American kestrel eggs, 26 great horned owl livers, and 18 samples of carp eggs were collected from sites on the RMA and from representative off-post reference areas in the vicinity of the RMA.

2.1.1 American Kestrel

The following procedures were used for the 1998 American kestrel egg sampling efforts. These efforts paralleled those instituted under the USFWS Biomonitoring Program, which was initiated prior to the preparation of the SAP. Kestrels have a moderate home range that is roughly associated with spatially stratified nest box placements at the RMA, and sufficient residency time to accumulate dieldrin (an organochlorine, like dioxin) in tissues of eggs (Figure 1). Kestrels were therefore assumed to be a good candidate species for assimilating measurable PCDD/Fs that could possibly be attributable to the RMA at general locations. The USFWS Kestrel Nest Box Monitoring protocol is presented in Appendix D of the SAP. The nest box locations used for the Tier I Field Study on the RMA are provided in Figure 2. The off-post collection locations are provided in Figure 3.

After kestrel eggs were collected, they were processed at the USFWS RMA laboratory facility. The contents of each egg were removed by cutting the eggshell with a disposable sterile scalpel blade along the equator of the eggshell, and placed in a specially cleaned Eagle Pitcher 2-ounce glass jar to be frozen. Each sample was given a unique sample number that identified species, matrix, and the nest box from which it was collected. All pertinent sample information such as time, date, collector, unique specimen number, species, location, and condition was recorded. Egg samples were analyzed for the presence of Ah-R agonists with congener-specific analyses (TEQ) and the H4IIE-luc bioassay (TCDD-EQ). Spiked quail eggs, which contained known amounts of PCB-126, were submitted blindly and randomly to the laboratories to test for accuracy of the methodologies.

Measurement of PCDD/F Concentrations

Polychlorinated Dibenzo-*para*-Dioxins and polychlorinated Dibenzo-Furans are complex mixtures of as many as 210 individual chemical congeners—75 PCDDs and 135 PCDFs. The relative concentrations of the congeners vary widely among samples. In addition, the relative toxicity of the individual congeners varies from two-fold to more than approximately 100,000-fold. However, only 7 PCDDs and 10 PCDFs are toxic. Thus, it is not possible to determine the toxicity of these mixtures solely by determining the total PCDD/F concentrations as a sum of the congener concentrations. To determine the potential toxic effects of mixtures of PCDD/F concentrations, it is necessary to combine concentrations of PCDD/Fs into a single aggregated measure of "equivalent toxicity."

The BAS chose to use the conventional toxic equivalency factor (TEF) approach to estimate the total toxicity-based exposure to wildlife. The current scientifically accepted measure that provides this estimate is the 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxicity equivalent (TEQ). In this approach, the toxic potency (TEF, WHO [World Health Organization]) of each congener is expressed as a relative concentration when compared to the most potent Ah-R agonist: TCDD. This approach provides an estimate of the total toxicity of all the congeners that act through a single mechanism of action that is initiated by the binding of chemicals to the cellular aryl-hydrocarbon receptor (Ah-R). The TCDD toxicity equivalent is an estimate of the concentration of TCDD that would have the same toxicity as the mixture of total PCDD/Fs in contaminated samples. In addition to PCDD/Fs, there are other related chemicals that contain some TCDD-like activity, such as PCBs and other poly-halogenated chemicals. The BAS also analyzed for 12 PCBs in tissues, even though PCBs were not considered COCs at RMA for purposes of mass-balance comparisons of results by two methods as described below.

In this study, aggregate measures of toxicity were determined in two ways using two different sets of empirical data. These methods are: 1) chemical residue measurement by instrumental analyses of 29 individual congener concentrations, that are multiplied by the TEFs promulgated by the WHO (van den Berg et al. 1998), denoted here as TEQ, and 2) bioassay determination of TCCD equivalent concentrations of all TCDD-like compounds which elicit a biological response that is mediated by binding with the Ah-R of H4IIE-luc cells (rat hepatoma cells with a luciferase indicator) in laboratory cultures, denoted here as TCDD-EQ. Detailed discussions of these methods are provided in the SAP.

2.1.2 Great Horned Owl

A formal protocol for collection of fortuitous specimens was developed by the USFWS in 1993 (USFWS 1994 and BAS 2000). This protocol was agreed to be adequate and acceptable for this Tier 1 screening investigation. When a great horned owl was found dead or moribund, its carcass was placed into a plastic bag and specific procedures were followed. All pertinent information such as time, date, collector, unique specimen number, species, location, and condition was recorded onto a sample tag and a fortuitous specimen form. The completed sample tag was placed inside a second plastic bag, along with the first bag that contained the collected specimen. Specimens were refrigerated if they were shipped for necropsy within 24 hours of the collection time. If shipment could not occur within 24 hours of the collection time, specimens were frozen until shipping was possible. Freezers that stored specimens were locked and located in a room with controlled access. Chain-of-custody procedures were used when submitting specimens to the analytical laboratories.

Both juvenile and adult great horned owls were analyzed in order to account for any differences in PCDD/F concentrations that may be caused by age. Owls were collected from the RMA and off-post reference areas along the Front Range and from northeastern Colorado. The collection locations of fortuitous owl samples at the RMA that were used for this Tier I Field Study are depicted in Figure 4. The off-post great horned owl collection locations are depicted in Figure 5**.**

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Figure 1. Historical accumulation of dieldrin in American kestrel eggs at RMA nest box locations

PDF to be found on the Web site

Figure 2. American kestrel nest box locations at Rocky Mountain Arsenal

PDF to be found on the Web site

Figure 3. Off-post American kestrel nest box locations

PDF to be found on the Web site

Figure 4. Great Horned Owl Collection Locations at Rocky Mountain Arsenal

PDF to be found on the Web site

Figure 5. Off-Post Collection Locations for Great Horned Owls

PDF to be found on the Web site

2.1.3 Carp

Carp egg masses were collected from a total of 18 sexually mature female carp in the spring. To control for age and exposure potential, only carp measuring between 18 and 26 inches long were collected. On-post carp were collected from Lower Derby Lake (see Figure 2 for lake location). Off-post reference carp were collected from Banner Lakes.

Carp were collected by use of gill nets and electro-shocking techniques. Following capture, fish were temporarily stored in a live well until euthanized. Egg masses were collected directly from the fish and placed in specially prepared glass jars.

All pertinent sample information such as time, date, collector, unique specimen number, species, location, and condition (length and body weight) were recorded on a sample tag for each collected sample. Any other tissues that were removed were also recorded on the sample tag.

Carp carcasses (without the eggs) were wrapped in hexane/acetone-rinsed aluminum foil and archived in a controlled setting until all analytical results were evaluated. Eggs were submitted for the H4IIE-luc bioassay (TCDD-EQ) and congener-specific analyses (TEQ).

2.2 Laboratory Standard Operating Procedures

The Standard Operating Procedures (SOP) for the Congener-Specific Preparation and Analysis of PCDDs, PCDFs, and PCBs was prepared by Midwest Research Institute (MRI) and is included in Appendix B of the SAP (BAS 2000).

The full Standard Operating Procedures for the H4IIE-Luc Bioassay, prepared by Michigan State University (MSU), is explained in Appendix A of the SAP (BAS 2000).

3.0 DECISION PROCEDURE

The following is a brief summary of the Decision Procedure used to evaluate the data from this Tier I Field Study. A more in-depth synopsis of the Decision Procedure is included as **Appendix** B of this report. The complete Decision Procedure is Appendix C of the SAP (BAS 2000). The Decision Procedure was used to evaluate the chemical residue analyses of PCDDs and PCDFs (TEQs) and the 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalents (TCDD-EQs) determined by the H4IIE-luc bioassay in samples of wildlife tissues, to answer the following question:

> ***Are concentrations of PCDD/Fs in representative biota samples collected on the RMA greater than those in comparable samples from off-post reference sites?***

The first step of the Decision Procedure was to assess the acceptability and usefulness of the data. Quality assurance and quality control (QA/QC) procedures are outlined in the SAP and in the laboratory QC program for each laboratory, based upon performance criteria. The Decision Procedure next specifies how concentrations of PCDD/Fs in biota at the RMA were planned to be statistically compared to concentrations in the same species at off-post reference sites. Three different statistical comparisons of PCDD/F concentrations were made between groups of biota from the RMA and off-post reference areas. The first two comparisons examine differences between concentrations of TEQs and/or TCDD-EQs in biota from the RMA and off-post references, and the third comparison evaluates the pattern of congeners present in each species.

To answer the general question posed above for the Tier I Field Study, greater weight was placed on concentrations of TEQs as calculated from concentrations of PCDD/Fs and TEFs (toxicity equivalency factors), because these measurements represent more definitive chemical analyses of the target chemicals and are linked to a wider range of environmental fate and effects data. There is also a greater regulatory history and acceptance of TEQs for risk assessment than currently for TCDD-EQs. In addition, while the H4IIE-luc bioassay does not specifically measure dioxins and furans (a disadvantage), it does measures all TCDD-like chemicals (an advantage), including those not targeted by the chemical analyses that act through the Ah-R binding mechanism that can lead to additional TCDD-like toxicity. Thus, the bioassay measures the actual biological activity in a sample, plus it provides a more direct measure of biological relevance of the TCDD-like chemicals present in the sample.

Three approaches were used for statistical comparisons to provide answers for specific Tier I Field Study questions that were scientifically formulated as ***null*** and ***alternative*** hypotheses. The criteria for rejection of the null hypothesis with concomitant acceptance of the alternative hypotheses involve specifying a significance level of probabilities for Type I error (α) to be less than (<) 0.05 (providing confidence [1 - α] as greater than [>] 95%) and probability for Type II error (β) to be < 0.20 (producing power as [1 - β] > 80%). A Type I error is committed when one falsely concludes there is a difference between two groups, when truly there is not a significant difference; i.e., a false positive conclusion is made. Conversely, a Type II error is committed if one falsely concludes there is no difference between two groups, when truly there is a significant difference that was missed for various reasons; i.e., a false negative conclusion is made.

Decision matrices and decision flowcharts were created based on the Decision Procedure used in guiding risk-based decision making, as presented in the Weights-of-Evidence approach described in **Tables A through D** and **Figure 6**.

Table A. Decision matrix for American kestrel eggs and great horned owl livers to support the evaluation of PCDD/Fs as COCs[1] at the RMA

Step V in column 5 below addresses the general question to be answered by the Biological Assessment Subcommittee (BAS) for this Tier I Field Study, stated as: ***Are concentrations[2] of PCDD/Fs in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Step I: Data Usability	Step II: TEQ ($H1_o$ or $H2_o$)	Step III: TCDD-EQ ($H3_o$ or $H4_o$)	Step IV: Pattern Analyses ($H5_o$)	Step V: BAS's Answer for Overall Decision[3, 4]	Examples of the BAS's considerations for professional interpretation of the Overall Decision
Evaluated	Reject H_o	Reject H_o	Reject H_o	YES	Probable COC at the RMA.
Evaluated			Accept H_o	YES or Inconclusive	Perform mass-balance[5] with REPs (relative effect potencies).
Evaluated	Reject H_o	Inconclusive	Reject H_o	YES	Probable COC at the RMA.
Evaluated			Accept H_o	YES or Inconclusive	Perform mass-balance[5] with REPs.
Evaluated	Reject H_o	Accept H_o	Reject H_o	YES	Possible[6] COC at the RMA.
Evaluated			Accept H_o	YES or Inconclusive	Perform mass-balance[5] with REPs.
Evaluated	Accept H_o	Reject H_o	NA	Recalculate TEQs including PCBs	After recalculating the TEQs including PCBs, repeat the statistical analysis, and use the sub-matrix below.
Evaluated	Inconclusive	Reject H_o	NA	Recalculate TEQs including PCBs	After recalculating the TEQs including PCBs, repeat the statistical analysis, and use the sub-matrix below.
Evaluated	Inconclusive	Inconclusive	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Uncertain toxicity equivalent factors (TEFs) and trace analysis may be cause for TEQ.
Evaluated	Inconclusive	Accept H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Uncertain TEFs and trace analysis may be cause for TEQ.
Evaluated	Accept H_o	Inconclusive	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Possible non-PCDD/Fs causing slightly higher bioactivity.
Evaluated	Accept H_o	Accept H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Probably not a COC at the RMA.

Table B. Decision Sub-matrix for American kestrel eggs and great horned owl livers to evaluate PCB contributions at the RMA for outcomes when the null hypothesis is rejected for Step III TCDD-EQ but accepted or inconclusive for Step II TEQ

Step V in column 5 addresses the general question for this Tier I Field Study: ***Are concentrations[2] of PCDD/F in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Recalculate the TEQ including PCBs for Step II, and then use the following matrix for decision for the overall outcome.

Step I: Data Usability	**Step II: TEQ ($H1_o$ or $H2_o$)**	**Step III: TCDD-EQ ($H3_o$ or $H4_o$)**	**Step IV: Pattern Analysis ($H5_o$)**	**Step V: Overall Decision[3,4]**	**Examples of considerations for interpretation of Overall Decision**
Evaluated	Reject H_o	Reject H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source; however, PCB congeners account of majority of differences.
Evaluated			Accept H_o	NO	This outcome may indicate that PCB congeners are significantly greater for RMA samples than off-post reference samples. The BAS will consider the implications.
Evaluated	Accept H_o	Reject H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Possible other agonist causing bioactivity.

Notes: (for Tables A and B)

1. COC (contaminant of concern) is an EPA term for a chemical that has both a source and a potential for release from a site, as per EPA Guidance (EPA 1989) that is based on Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and National Contingency Plan (NCP) regulations. The BAS agreed to use a stepwise scientific approach that evaluates the weight and strength of the major "lines of scientific evidence" from tiered biological studies at the RMA, which provide site-specific information to evaluate whether PCDD/Fs may be COCs. Using this stepwise approach to reach the overall decision in Step V above, Step I (not shown) was performed first to ensure the adequacy of data for further valid biostatistical evaluations, and then the BAS considered the anticipated combinations of possible results as shown in Steps II through IV. The possible outcomes in the matrix are sorted in descending order with the strongest evidence for existence of COCs at the top and the strongest evidence for absence of COCs at the bottom, with more weight being given to the results from the TEQ analyses in Step II.

2. Concentration, as used in this context, means "toxic-equivalents" of 2,3,7,8-TCDD that are generated by the 17 PCDD/F congeners with Ah-R agonist activity. It is important to note that only Step II (TEQ) provides results from a direct measure of PCDD/F concentrations, although those measurements can become less certain near the analytical detection limits due to measurement errors and due to uncertainties in TEFs; additionally, Step III (TCDD-EQ) can provide an indirect measure of PCDD/F concentrations, provided that the bioassay results are not overshadowed by other chemicals with Ah-R activity.

3. An "inconclusive" decision indicates that the general question posed cannot be answered as "yes" or "no" with sufficient scientific confidence. An inconclusive outcome will result in further ecotoxicological analysis of the problem by the BAS.

4. The BAS recognizes that bioassay derived TCDD-EQ concentrations might not reflect analytically derived TEQ concentrations because biota extracts may contain substantial amounts of other types of Ah-R agonists or antagonists (e.g., PCBs, polycyclic aromatic hydrocarbons, polychlorinated naphthalenes, etc.). If such other Ah-R agonists or antagonists are present in samples at sufficiently high concentrations, they will likely influence the TCDD-EQ concentrations while not being totally accounted for in the chemical residue analyses. Therefore, while TCDD-EQ results by themselves cannot answer the general question posed in the Tier 1 Field Study, TCDD-EQs can be used in a weight-of-evidence approach to help guide (a) the interpretation of toxicological significance (especially if PCDD/Fs have the predominance of Ah-R activity), and (b) possible future studies at the RMA. The BAS generally recognizes that TCDD-EQs, if not overshadowed by other Ah-R activity, can potentially show differences (similar to TEQs) in PCDD/F concentrations on- and off-post.
5. This overall answer depends on the results of the pattern analyses: (a) if the Principal Components Analysis (PCA) visual patterns and/or cluster analyses and profile analyses of relative concentrations of PCDD/F congeners are the same, but the masses of PCDD/Fs are substantially greater on-post than in off-post samples, then the outcome is "yes," or (b) if the masses are similar in this event, then the outcome is "inconclusive."
6. The suggested interpretation of the outcome for this scenario is downgraded to "possible COC" from "probable COC," because this situation is anticipated to occur from a small difference between groups with relatively low TEQs that may be barely significant ($p < 0.05$); therefore, there would likely be greater uncertainty in this outcome, since the results may be driven by error in trace-level detection limit concentrations coupled with uncertain TEFs.

Table C. Decision Matrix for Combined Results for Terrestrial Species to Support the Evaluation of PCDD/Fs as COCs at the RMA

Column 4 addresses the general question for this Tier 1 Field Study: ***Are concentrations of PCDD/F in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Text Reference	American Kestrel Decision	Great Horned Owl Decision	Overall Terrestrial Species Decision
V.B.1	YES	YES	YES
V.B.1	YES	NO	YES
V.B.1	YES	Inconclusive	YES
V.B.1	Inconclusive	YES	YES
V.B.1	NO	YES	YES
V.B.2	NO	Inconclusive	Inconclusive
V.B.2	Inconclusive	NO	Inconclusive
V.B.2	Inconclusive	Inconclusive	Inconclusive
V.B.3	NO	NO	NO

[a] Text references are from BAS (2000). *Rocky Mountain Arsenal Dioxin/Furan Tier I Field Study Sampling and Analysis Plan*.

Table D. Decision Matrix for Carp Eggs to Support the Evaluation of PCDD/Fs as COCs at the RMA

Column 5 addresses the general question for this Tier 1 Field Study: ***Are concentrations of PCDD/F in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Step I: Data Usability	**Step II: TEQ ($H1_o$)**	**Step III: TCDD-EQ ($H3_o$)**	**Step IV: Pattern Analysis ($H5_o$)**	**Overall Outcome**
Evaluated	Reject $H1_o$	Reject $H3_o$	Use to determine principal components	YES
Evaluated	Reject $H1_o$	Inconclusive	Reject $H5_o$	YES
Evaluated	Inconclusive	Reject $H3_o$	Reject $H5_o$	YES
Evaluated	Reject $H1_o$	Inconclusive	Accept $H5_o$	Inconclusive
Evaluated	Inconclusive	Reject $H3_o$	Accept $H5_o$	Inconclusive
Evaluated	Inconclusive	Inconclusive		Inconclusive

Figure 6. Flowchart of Overall Decision Procedure for American Kestrel Eggs and Great Horned Owl Livers to Support the Evaluation of PCDD/Fs as COCs at the RMA

Are concentra6tions of PCDD/F in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?

PDF to be found on the Web site

4.0 DATA ACCEPTABILITYAND USABILITY

4.1 Laboratory Quality Assurance/Quality Control

Various EPA guidances discuss proper selection of samples and analyses of results for comparisons to background concentrations, particularly the 1992 Data Usability for Risk Assessment in Superfund Guidance. The 1998 Guidance for Data Quality Assessment, EPA QA/G-9, and the 1999 Requirements for Quality Assurance Project Plans for Environmental Data Operations, EPA QA/R-5, are also good sources for information on making use of Data Quality Objectives along with establishing study criteria for acceptable field procedures and laboratory analytical performance. These guidances provide support to attain minimal required criteria for precision, accuracy, representativeness, completeness, and comparability (PARCC) of data. The SAP and its Decision Procedure, summarized in **Appendix** B, address the following processes.

Given the aim of this study and the assumption that background samples from off-post reference areas and/or times are collected to be as similar as possible except for exposure to site-released contaminants, then certain procedures for data management and analyses apply. For instance, outlier analyses can generally be performed on reasonably homogeneous off-post reference groups, but outlier analyses are usually not warranted for site data where the nature and extent of contamination has yet to be determined. The reason for this difference is that Tier I Field Study on-post outliers could represent discrete point sources and releases of contamination, rather than extreme variation of data outside certain standard deviations from the sampled mean. Elimination of on-post outliers at this screening stage of evaluation, before the nature and extent of contamination is known, could falsely eliminate areas with actual point sources or releases of COCs, and so it was (conservatively) not planned for this study. The possible downside is that one may include true outlier data in evaluations that skew results, weakening certain statistical test assumptions.

While all samples collected from on-post and off-post reference groups were initially considered by BAS scientists to be reasonably suitable for the intended use to represent contamination and exposure at their respective sites, there did develop obvious problems with emaciated on-post owls (a risk that one takes when using fortuitous screening specimens) that did require the rarely performed but justifiable outlier adjustments (discussed in detail in Section 4.3.2). The BAS also formed an internal workgroup that helped to audit and verify the reliability of the laboratory data, employing the assistance of laboratory chemists from EPA and from Army contractors, to examine and recommend uses of flagged sample results that did not fully qualify for intended use because of failure to meet predefined PARCC criteria as specified in the SAP. The QA/QC procedures were also conducted as specified in the Laboratory Quality Control Program (LQCP) requirements for MRI and for MSU. Usable data were compiled by the workgroup into standard spreadsheets for consistent later uses. The target MDL for 2,3,7,8-TCDD was 1 ppt for both laboratories.

Data that met acceptability criteria specified in the LQCP were categorized as “fully acceptable” and used in further analytical steps for TEQ and TCDD-EQ determinations in the tissue samples. Data that did not meet all criteria for acceptability in the LQCPs, but still met the minimal BAS's pre-defined usability criteria in the SAP, were classified as “usable” for further analytical steps in determining TEQ and TCDD-EQ; however, the significance of the LQCP short-comings were

described in uncertainty sections of BAS reports (see **Appendix** C1**, Table C1-1**). For example, flagged data were assessed for relative impacts on quantitative results, to ensure that proxy values did not artificially influence interpretations. Data that failed to meet any of the above criteria were reviewed by the BAS to decide how best to proceed with the less-certain usability of the data; e.g., recoveries were sometimes too far from 100%, or interferences caused MDLs for congeners to be too high. Some of these data were partially usable and sufficient for semi-quantitative analyses, rather than for quantitative statistical analyses to determine TEQs and TCDD-EQs.

Another aspect of data usability that was evaluated included the degrees of spatial and temporal *representativeness* of Tier 1 Field Study biota samples. Uncertainty existed for defining boundaries of the core population of kestrels, but the standard designation used by the USFWS Biomonitoring Program was used in this Tier I Screening Study for kestrel nest boxes located in sections 1, 2, 25, 35, and 36. An alternative would have been to measure dieldrin concentrations in kestrel eggs as an indicator to try to categorize birds with higher exposures to co-located PCDD/Fs on the RMA, but sample weights were inadequate. Kestrels have the advantage of a smaller home range that is roughly associated with spatially stratified nest box locations, and sufficient residency time to accumulate dieldrin in tissues of eggs, and therefore were assumed to be able to assimilate measurable PCDD/Fs attributable to the RMA. Owls, on the other hand, had wider foraging ranges that possibly included off-post locales, plus they were not spatially allocated over the RMA, which led to greater uncertainty about residency status and fractions of exposure attributable to the RMA. The owls also had limitations due to smaller sample numbers and wide variations in ages that could influence chronic uptake of bioaccumulating chemicals, partially overcome with the sampling of juveniles. Samples of 18 carp were collected on-post in the spring before spawning, but only two samples of carp were available from off-post lakes; however, this did not become a major limitation.

Selected off-post reference areas were anticipated to naturally vary somewhat in exposure and contamination, and thereby reflect a reasonably normal range of background concentrations of PCDD/Fs. However, because more than one off-post reference location was used, there existed a possibility of greater (perhaps statistically significant) differences in TEQ or TCDD-EQ and patterns occurring between different off-post reference locations than between the on-post versus off-post reference locations. There was also the possibility that outlying data points may occur within otherwise homogeneous groups of reference data (designated as greater than 2.5 standard deviations above the sample mean, or outside the 99^{th} percentile of expected data). Divergent outliers were flagged and noted for their relative effect on the results; e.g., the highest kestrel egg TEQ concentration and relatively high owl liver concentrations were located in off-post reference samples.

4.1.1 Midwest Research Institute Chemical Analysis

The QA/QC procedures were conducted as specified in the SAP and in the LQCP requirements for MRI (MRI-5405-1,2.7). Initial draft results of analyses, which used a hybrid method to process (two extraction columns) and measure the 29 TCDD-like chemicals in fatty tissues, identified to the BAS workgroup that better understanding and definitions of laboratory flags were needed to properly evaluate and apply the data for comparisons in this Tier I Screening Study. A table of defined flags resulted, and is presented in **Appendix** C1**, Table C1-1**. The analytical laboratory performed in an excellent manner, based on results from random and blind

Interpretation and Use of Detection Limits

In many instances the concentrations of PCDD/Fs in the samples of this study were so low that they could not be detected by the trace-level analytical instrument. In this case, the laboratory reported the results as *non-detected* at the method detection limit (MDL) of the instrument. In other cases, the data may be qualified as *estimated* because the detection was lower than the level that the laboratory is confident in quantitatively reporting (the method quantitation limit or MQL), but the signal was greater than the MDL, or because the QA of the analytical procedure does not meet the QC criteria to report the actual value with enough confidence.

Scientists who use the data must decide how to properly apply data that are reported by a laboratory as non-detected or estimated. For this study, three sets of data were specified for the TEQ analysis, and two were specified for the TCDD-EQ analysis. It is common risk assessment practice to replace non-detect results with substituted proxy values, usually at ½ the MDL for the analyte. The purpose of specifying more than one data set to analyze is to evaluate the relative effect that the proxy values for non-detected analytes may have on the results; in effect this is a simplified sensitivity analysis.

For the **TEQ** analysis, the following three data sets were specified in the Decision Procedure:

TEQ_{FULL}: Full data set that includes non-detected and flagged data for each of the 29 congeners: substitute ½ the sample MDL for any sample result less than the MDL, and use the reported estimated value for each sample result between the MDL and the MQL

TEQ_{PAR}: Partial data set that includes flagged data: omit the non-detected analytes from the above full data set, and use the reported estimated value for each sample result between the MDL and the MQL

TEQ_{QUAN}: Fully quantitative data set that does not include proxy or disqualifying flagged data: include only data above the sample MQLs that are not annotated with a disqualifying flag

For the **TCDD-EQ** analysis the following two data sets were specified in the Decision Procedure:

TCDD-EQ_{FULL}: Full data set that uses the reported estimated value for each sample result between the MDL and the MQL (unanticipated, but can substitute ½ the MDL as proxy values for sample results that are less than the MDL)

TCDD-EQ_{QUAN}: Fully quantitative data set that does not include proxy nor flagged data: include only data above the sample MQLs that are not annotated with a disqualifying flag

While the Decision Procedure specifies the preferred use of the partial data set, these data were analyzed only in situations where different statistical outcomes were generated using the full and quantitative data sets. Only the full data set, as an exception to the Decision Procedure, using values above the sample MQL and ½ the MDL where concentrations were below the MDL, was used in pattern analyses. In principal components analysis (PCA), any congener that does not have a data value for every sample is eliminated from the analysis. Therefore, when a significant number of proxy values are present in a data set, this data reduction can result in the elimination of all the congeners from the PCA results. In addition, while proxy values can be misleading in risk assessment procedures, they can sometimes (depending upon analytical performance) provide valuable information for pattern recognition techniques. For example, a value less than the MDL can provide qualitative information on the concentration (with uncertainty) of that congener relative to other congeners greater than the MDL.

Data are presented as the full data set (TEQ_{FULL}) that contained flagged values and also included ½ the detection limit for those congeners that were below the MDL. The second data set presented (TEQ_{QUAN}) is a data set that contains no flagged data or data less than the MQL.

QC samples, which increased the confidence in the accuracy of trace-level (near 1 ppt TEQ) concentrations of the TCDD-like chemicals. Briefly, the laboratory reported sample-specific detection limits that were defined as a 4:1 signal to noise ratio, provided quantifiable results defined as a 10:1 signal to noise ratio, used a six-point calibration TEQ standard with internal calibration standards for the 29 congeners, plus used a corn oil matrix for blank control samples in each batch. The laboratory personnel provided full data sets of instrumental results with narrative reports. Army, EPA, and USFWS representatives from the BAS and the RMA conducted several audits at MRI, and generally good outcomes were found with corrective actions employed as necessary.

4.1.2 Michigan State University Bioassay Analysis

The QA/QC control procedures were also conducted as specified in the SAP and in the LQCP requirements for MSU (SOP # Table 3-4.1). Army and USFWS representatives also conducted a couple of audits at MSU, and generally good outcomes were found with corrective actions employed as needed. Procedures for the H4IIE-luc bioassay are presented fully in the SAP and in relevant standard operating procedures. The QA/QC plan divided within-assay procedures from matrix and sample procedures.

The within-assay QA/QC procedures ensured the acceptability of the assay results for individual samples. The prime QA/QC criterion for the bioassay is the determination of the assay EC50 (the dose of TCDD, which elicited half the maximal response) for the TCDD standard curve analyzed on each plate with each sample. The acceptability criterion for this parameter is the average for the QC lot plus 20%. Additional QA/QC procedures for each lot include the assay blank value and maximum luminescence for the TCDD standard curve. These two values were also used to generate a signal to noise ratio estimator for the assay by expressing the maximum standard value as a percentage of the blank values. A signal to noise ratio of 10 to 1 (standard greater than 1,000% of blank) is considered acceptable. These procedures ensure that the bioassay procedure truly reflects the concentration of TCDD-EQ in the prepared extract.

Sample and matrix QA/QC procedures were used to evaluate the acceptability of the entire sample preparation and assay procedure. These procedures included the analysis of laboratory blanks and spikes; matrix (chicken egg) blanks and spikes; selected sample duplicates (ensured reproducibility of extraction and assay procedures); nominal field standards (spiked with PCB-126); and pilot study samples to rule out dieldrin interactions. These procedures ensured that the assay results truly reflected the concentration of dioxin equivalents present in the samples.

4.2 Field Quality Assurance/Quality Control

4.2.1 Collection And Processing

As described earlier in this report, and available in the SAP and USFWS Biomonitoring Plan, samples were collected using standard operating procedures and sound scientific techniques.

4.2.2 Field Performance Evaluation (PE) Results

This study was also able to include 12 known standard samples for kestrel egg analyses, which included no, low, median, and high concentrations of a TCDD-like congener: PCB-126. These QC samples were prepared with clean quail eggs by an Army contract laboratory, and were submitted as blind and random duplicates (8 total), spiked with 0-, 10-, 100-, and 1000-ppt PCB-

126; generating 0-, 1-, 10-, and 100-ppt TEQ when applying the WHO avian TEF of 0.1. Another four random and blind samples of unspiked (naive controls) quail eggs were also included in the sample train. These samples worked well to help confirm the abilities of the two analytical laboratories to accurately and consistently measure trace-levels of PCDD/Fs in egg samples. From the results, it appeared that the chemical residue analysis by MRI was able to detect the lowest concentration with about 1 or less ppt TEQ, whereas the bioassay by MSU was able to detect down to the median concentration of about 10 or less ppt TCDD-EQ (both MDLs being adequate for this Tier I Screening Study).

4.3 Data Assessment

The data for this report are presented in **Appendix C** analytical TEQs (C2 for American kestrel eggs, C3 for great horned owl livers, and C4 for carp eggs) and in **Appendix** D for bioassay TCDD-EQs. Nearly all of the data met the PARCC criteria for quality, with minor inconsequential exceptions for a few congeners with TEQ results or a few TCDD-EQ bioassay results in tissue samples. Since the use of proxy values had minimal impact on the quantitative differences in TEQs, the *full data set with all 17 PCDD/F congeners* was used for all statistical analyses (see **Appendix** E). The Decision Procedure in the SAP had originally called for truncating the quantitative data set for use in PCA (Principal Components Analysis) and pattern analysis; however, numerous non-detect values would have overly complicated or prevented the performance of the statistical test by using the more limited quantitative data set. The more qualitative data set with proxy values substituted for non-detect concentrations introduces more uncertainty in the pattern analysis.

4.3.1 American Kestrel Egg Data

The chemical residue analyses of PCDD/Fs and PCBs in eggs of kestrels proceeded quite well, considering that the kestrel egg samples were prioritized to be run first through the new hybrid method at MRI. This method was modified in an attempt to achieve lower detection limits of about 1 ppt of 2,3,7,8-TCDD, for better quantitation of trace-levels of PCDD/Fs in off-post reference tissues to statistically compare with potentially elevated concentrations from on-post tissues. Some problems were noted with elevated levels of congeners in the corn oil controls for batches run at MRI, and certain PCB analyses were occasionally problematic, but correction measures or adequate laboratory explanations were given to help the BAS workgroup properly interpret the data. The MSU bioassays appeared to perform acceptably, and clarification was provided to the BAS workgroup for fully understanding how the varied bioassay responses were processed during data reduction to normalize for comparable response endpoints with standard curves.

4.3.2 Great Horned Owl Liver Data

Because the owls were collected fortuitously from the RMA, there were factors that could not be controlled by sampling design. First, the ages of three of the dead owls collected on-post could not be determined; therefore, a third age class (unknown) was evaluated in statistical analyses. Tests were conducted by either treating these unknown age birds as adults (since most young first-year birds are identifiable), or by excluding these birds from the data set. Outcomes for both analyses are reported, and differences contribute to the range of uncertainty for owl results. Accurate determination of the age of the owls is significant, as the SAP specifies that tests be conducted to determine whether PCDD/F concentrations were different in the two age groups.

Second, and of more importance to the analysis, three of the four adult birds collected on-post were severely emaciated, presumably due to starvation caused (based on the probable diagnostic etiology) by dieldrin poisoning or infectious disease. Because of their lipophilic nature, TCDD-like chemicals have a high affinity for fatty tissues, and redistribution of body fat during a period of starvation would be expected to cause a redistribution of PCDD/Fs out of the primary fat stores to secondary storage tissues (e.g., liver and brain) in the bodies of these owls. Thus, emaciation would be expected to have a potentially large impact on the PCDD/F concentrations measured in the owl livers.

It was initially anticipated by the BAS that most, if not all, the adult owls would be reasonably representative of and accurate monitors for exposures to PCDD/Fs at the RMA by the indirect analysis of surrogate liver tissues, provided there was uniform uptake and deposition of lipophilic PCDD/Fs into the livers. Liver tissue was selected for analyses in owls since it is easier to process than carcasses, there was toxicity reference information to relate liver PCDD/F concentrations to toxic effects, more livers were available from fortuitous specimens than from carcasses (often consumed by necropsies for disease diagnosis), plus livers tend to accumulate PCDD/Fs (important for trace-level analyses). However, it was subsequently learned that the rank order and relative magnitude of the three highest liver concentrations coincided with only the three owls that were emaciated, which was considered to be an unlikely independent outcome and for which there was a precedence to suspect confounding causes may be producing falsely elevated concentrations in those livers. Furthermore, since all emaciated owls were found only on the RMA property, this could falsely implicate or exaggerate the likelihood of liver elevations being associated with a possible source of PCDD/Fs at the RMA.

4.3.2.1 *Literature Survey of Emaciation in Birds*

Two approaches were used by BAS scientists to determine what effect this confounding factor would have on the data analysis. First, a literature survey was carried out and is presented in **Appendix** F. This survey of the literature showed that no applicable data for the mobilization of PCDD/Fs in emaciated birds were available. However, data were available for the remobilization of some lipophilic organochlorines with similar biokinetic as well as physical and chemical properties. These studies, however, were not directly comparable to the RMA owls, since many of the test organisms were being fed high doses of the test compounds immediately before or during the emaciation phases of the acute exposures. This made interpretation of the studies difficult, as the alterations in tissue concentrations observed were influenced by both depuration of the recently ingested dose as well as mobilization of the chemicals from other body stores. The available studies suggested that a correction factor roughly between 1 and 5 might be applicable to adjust the liver concentrations to account for the effects of emaciation. However, it was the opinion of the BAS that this correction factor could not be used without further supporting site evidence.

4.3.2.2 *Whole Body Analysis and Liver Concentration Adjustment*

To assess the possible effects of emaciation in owls from the RMA on their PCDD/F concentrations in livers, a subset of adult owls was obtained for which most of the whole body parts were intact, and they were analyzed for PCDD/F burdens (mass) on a whole body basis. No carcasses of juvenile owls were available from USFWS archives to perform similar analyses on younger owls. Whole body concentrations of PCDD/Fs in available carcasses from adult

emaciated owls were used to derive a site-specific correction factor for the TEQ concentrations in the liver samples. The correction factor was used to ultimately adjust liver concentrations downward, so that the emaciated owl results would more closely approximate actual liver TEQ concentrations if the owls had not been emaciated. Without this adjustment, defensible statistical tests could not be validly conducted on adult owls. The main reason for this is that the sample groups were not comparable as a result of some owls being severely emaciated while others were not (which confounded the results by creating falsely elevated PCDD/F concentrations in the emaciated owls).

Results of tissue fat analyses showed that the average lipid concentrations in the emaciated birds were low at 2.9% (range 2.2 to 3.0) in liver and 1.5% (range 0.9 to 2.3) in muscle, compared to the higher 7.4% (range 2.5 to 17.2) in liver and 7.9% (range 2.4 to 13.3) in muscle of non-emaciated adult birds that were collected from off-post reference locations (see **Table 1**).

Table 1. Estimated body burdens of TCDD-like chemicals as 2,3,7,8-TCDD TEQs in selected adult owl carcasses

Specimen	Carcass Weight[1] (g)	Carcass Lipid (%)	Carcass TEQ (pg/g)	Carcass Mass (pg)	Liver Lipids (%)	Liver TEQ (pg/g)	Liver[2] Mass (pg)	Total Body Burden[3] (pg)	Liver:BW Mass Ratio (%)
On-Post Emaciated Owls									
96FGH002	631	0.9	17	10729	2.2	399	7,461	18,191	41%
96FGH007	728	2.3	130	94352	2.7	2360	51,448	145,800	35%
96FGH017	847	1.5	28	23334	3.0	594	16,394	39,729	41%
Off-Post reference Non-Emaciated Owls									
96RFGH01	769	13.3	8	6490	17.2	10	229	6,718	3%
96RFGH03	896	6.6	30	26618	4.6	122	3,210	29,828	11%
96RFGH05	700	8.0	11	7934	3.0	12	276	8,210	3%
96RFGH07	975	9.4	24	23829	2.5	12	359	24,188	1%
96RFGH12	702	2.4	16	11220	9.9	24	578	11,798	5%

[1] Carcass weights are the net homogenized yield of soft tissues, assumed to contain nearly all PCDD/Fs
[2] *Estimated* from mean liver: body weight (**pre**-homogenized) ratio of 0.026 in birds (Barton and Houston 1996)
[3] Calculated by summing the carcass (missing the livers) and estimated liver burdens, with rounding errors
Note: The carcass of one of the adult on-post birds was not available for whole body analysis.

Differences in mean lipid content measured in liver samples were not statistically significant, due to low sample numbers and the larger variations in lipid contents of off-post reference owls, even though all three on-post owls' liver lipid percent were very similar and at the low end of the range found for non-emaciated off-post reference owls. Differences measured in carcass lipid content were significant for reduced amounts of body fat in the emaciated on-post owls (Mann-Whitney U-test, $p < 0.05$). The differences in carcass lipid measurements suggest that a significant reduction of body fats had occurred, which typically would mobilize any previously stored fat-seeking chemicals. These chemicals would not be expected to be eliminated significantly from the body but rather redistributed to other lipid-containing tissue (e.g., brain and liver).

The total body concentrations estimated for the available on-post and off-post reference owls were compared using the Mann-Whitney U-test, and they were not significantly different ($p = 0.18$). The Mann-Whitney U-test is a non-parametric method that ranks data and then performs analysis on the relative ranks, so that no assumptions of normality or homogeneity are required to validly analyze the data. However, unadjusted liver TEQ concentrations and liver body-mass ratios of TEQs were significantly ($p < 0.05$) elevated in emaciated owls as compared to the non-emaciated off-post reference owls.

The correction factor for elevated liver concentrations in emaciated owls could be derived by several means, based upon various assumptions and approaches. The BAS scientists considered it best to calculate the normally expected distribution ratios of the body burdens of TEQs between the estimates for liver and the whole body in off-post reference adults. Since liver weights in the fortuitous owls were unavailable, having been used up for dieldrin analyses, an avian mean % liver to body weight was substituted to estimate liver weights. The correction factor was applied to the measured liver concentrations in emaciated owls to calculate an expected "pre-emaciated" liver TEQ concentration. Specifically, the average percent of PCDD/F mass as TEQs in liver versus whole body for the non-emaciated owls was about 5%, while the average mass in the unadjusted liver versus whole body for the emaciated owls was about 40%. Therefore, a conservatively low adjustment of an 8-fold decrease was used to normalize PCDD/F concentrations in livers from emaciated owls (**Table 2)**.

Table 2. Raw and Adjusted* TEQ Concentrations (ppt) in Livers of Great Horned Owls

Sample	Carcass TEQ	Measured Liver TEQ	Adjusted* Liver TEQ
On-Post Emaciated Owls			
96FGH002	17	399	50
96FGH007	130	2,360	295
96FGH017	28	594	74
Off-Post Reference Non-Emaciated Owls			
96RFGH01	8	10	--
96RFGH03	30	122	--
96RFGH05	11	12	--
96RFGH07	24	12	--
96RFGH12	16	24	--

* Adjusted TEQs were calculated by dividing the measured values by 8 as described in the text.

This approach was deemed to likely be a more accurate option, but also conservative (minimal adjustment), since other approaches (e.g., only considering ratios of *concentrations* in liver to whole body) produced greater possible downward adjustments in emaciated liver TEQs. The rationale for using this method is based on the fact that PCDD/Fs are only slowly eliminated from the body; therefore, the whole body burden of PCDD/Fs in the owls would be essentially the same before and after emaciation. As a result, the "original" concentration of PCDD/Fs in the liver could be reconstructed as a function of the whole body TEQ mass along with the liver and body weights, while considering the relative changes in liver and body lipid contents. The resulting value of 8 for the adjustment factor accommodated for the higher partitioning of TEQs in the livers of emaciated owls. This factor was decided upon by the BAS after close examination of all the data and the application of best scientific judgment, while employing a

degree of conservative bias to ensure that the probability of a false negative conclusion being reached was not increased unjustifiably.

The determined adjustment factor of 8-times was also applied to the data for the bioassay results before statistical analysis, as the same factors leading to greater concentrations of the chemicals responsible for the TEQ should also apply to most of the chemicals that are active in the bioassay. While some less persistent chemicals such as polycyclic aromatic hydrocarbons (PAHs) are active in the bioassays, they are relatively easily metabolized and so do not generally accumulate to the same degree as PCDD/Fs. PAHs would not be expected to concentrate as much in the liver as do TCDD-like chemicals during lipid mobilization, and PAHs tend to be oxidized or conjugated by the liver and eliminated from the body faster. This suggests that using the concentration factor of eight for TCDD-EQ could be an overestimate of the concentration factor for the bioassay measurement of TCDD-like activity.

It was also noted that the off-post reference specimen 96RFGH03 had the greatest ratio of liver to whole body concentrations of TEQ in the off-post reference group, suggestive of some remobilization of TCDD-like chemicals to the liver; however, this ratio was still about one-fourth that of individuals from the on-post group. While this bird did not appear to be clinically emaciated, its liver and body lipid contents were greater than any of the emaciated birds, ranking third of five for liver and fourth of five for body lipid within the off-post reference group. This individual may be an outlier due to several possible causes, including effects of age, disease, and nutrition, etc. Even so, there appears to be a consistent demarcation of increased partitioning of body burdens of PCDD/Fs into the livers of emaciated owls.

4.3.3 Carp Eggs Data

The results for carp eggs were all very low in terms of exposure and risk, being near the trace-level detectable concentrations for PCDD/Fs. No substantial problems were noted with the chemical analyses of the samples. Even though there were only two samples of carp eggs from off-post to represent off-post reference area exposures, the concentrations were so low as to be judged highly unlikely to pose any threat of over-exposure to possible PCDD/Fs from the RMA. Therefore, the BAS recommended that the aquatic portion of the dioxin study was sufficiently informative to rule out possible excess risks.

5.0 ANALYTICAL AND STATISTICAL RESULTS

In this section of the report, concentrations are presented for TEQ as determined by chemical analyses and for TCDD-EQ as determined by bioassay. The Decision Procedure was used to determine whether concentrations of dioxins and furans were greater on-post than off-post. If so, then the possibility would exist that PCDD/Fs should be considered COCs at the RMA. While the pre-defined Decision Procedure was followed as closely as possible, there were points at which some divergence from the procedure was unavoidable due to the nature of the data set collected. Where these divergences were required, the scientific reasons for them were discussed.

To keep this section of the report brief, only summaries of the statistical results are reported. The complete data reports for the chemical analysis are included as **Appendix C** (C2 for American kestrel eggs, C3 for great horned owl livers, and C4 for carp eggs), while the data

reports for the bioassay results are included as **Appendix** D, and the outputs from the statistical tests are provided as **Appendix** E.

5.1 American Kestrel Eggs

The collection of American kestrel eggs from nest boxes that were arrayed in a grid pattern on the RMA provided the most systematic means of screening samples for potential exposure of wildlife to PCDD/Fs which might be present. The collected eggs represent a set of uniform tissues with a defined subchronic exposure period. In addition, the systematic arrangement of the nest boxes provided the most spatially representative data set, with similar sample sizes collected in the core and periphery of the RMA, as well as from off-post reference locations.

5.1.1 Samples Collected

In the 1998 field season, 11 eggs were collected from the core area of the RMA, 19 from the periphery, and 16 samples were collected from off-post reference locations near the RMA (**Table 3**). This set of samples also included 12 quail eggs that were used as a random blind QC samples.

Table 3. American kestrel eggs collected for the Tier I Field Study

On-Post			Off-Post
Total (O)	Core[a] (C)	Periphery (P)	Reference (R)
30	11	19	16

[a] The core population area (C) was defined per the USFWS Biomonitoring Program consisting of birds that potentially nest or feed in RMA Sections 1, 2, 25, 26, 35 and 36 (12 nest box locations designated NW02, NW06, NW07, NW11, NW12, NW25, NW26, NW30t, NW31, SE35, NE35, and NW35). The other possible definitions for the core population, as described in the Decision Procedure, were not used because no alternative spatial pattern of contamination was observed. Note that only 11 of the 12 nest boxes were occupied resulting in only 11 samples collected.

5.1.2 TEQ Results

Mean concentrations of TEQ measured in American kestrel eggs ranged from 10.8 to 22.4 ppt TEQ for the 17 dioxin and furan congeners for the three comparison groups (R, P, C), when the full data set (TEQ_{FULL}) was used (**Table 4**). In this data set, a value equal to ½ the MDL was assigned for concentrations less than the MDL, so that each of the 17 congeners had an assigned value. Using the quantitative data set (TEQ_{QUAN}), where results less than the MDL and disqualified flagged data were omitted, the average concentrations ranged from 8.3 to 18.3 ppt. The median (half the results above and half below) values for these measurements were considerably lower than the arithmetic mean values, indicating that the data set was skewed left with most values near the median and only a limited number of measurements at greater concentrations. Concentrations of TEQs are also plotted in **Figure 7**.

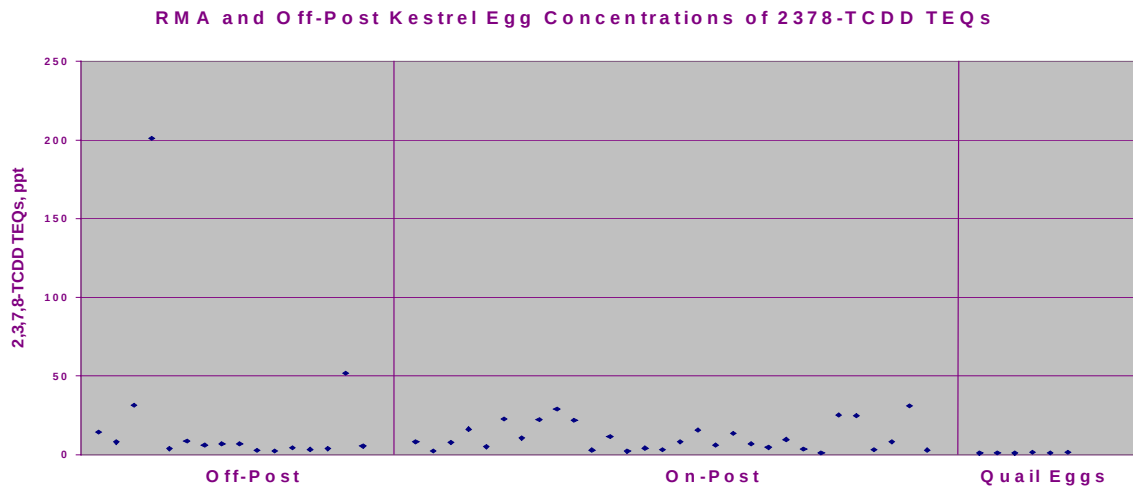
To assess the impact of frequencies and magnitude of proxy values on the data set, as specified in the Decision Procedure, the contribution of TEQ values from proxy values in the full set (with higher concentrations) compared to the quantitative set (with lower concentrations) of data was evaluated for each sample. To be within the acceptability criteria of the Decision Procedure, the relative TEQ contributed by the proxy values had to be less than 50% of the total TEQ for more than 50% of the samples. The contribution to TEQs by proxy values was less than 50% for 10 of 16 off-post reference area, 14 of 19 peripheral area, and 8 of 11 core area samples; therefore, the

Table 4. Summary of TEQ concentrations (ppt) measured in American kestrel eggs collected in the core (C) or periphery (P) areas of the RMA or from off-post reference (R) locations

Measure	Group	Number	TEQ ppt			
			Mean	Minimum	Maximum	Median
TEQ_{FULL}	R	16	22.4	2.2	201.0	5.7
	P	19	10.8	2.1	31.0	7.8
	C	11	11.8	1.1	29.1	8.2
TEQ_{QUAN}	R	16	18.3	0.1	177.5	2.9
	P	19	8.3	0.0	27.0	5.0
	C	11	8.8	0.1	27.3	4.5

decision criteria were met, since proxy values did not have an excessive influence on TEQs. As would be expected, the contribution of the proxy values was greatest for samples with small TEQ concentrations (TEQ less than 10 ppt), because these samples contained the greatest proportion of results less than the MDL and were more variable near the detection limit.

Figure 7. Plot of TEQs observed in eggs from American kestrels collected on-post at the RMA and from off-post reference areas, along with quail egg blank controls



5.1.2.1 *Distribution Analysis*

The frequency distribution of concentrations of TEQs in kestrel eggs was tested to determine if TEQs followed a normal distribution, using probability plots and the one-sample Kolmogorov-Smirnov test (**Table 5** and **Figure 8**). The Kolmogorov-Smirnov test with Lillifors' distribution produces a standardized distribution of the data and compares that distribution to that expected for a normal distribution. A significant ($p < 0.05$) test result indicates that the data distribution is significantly different from a normal distribution (**Table 5**). If the data diverge significantly from a normal distribution, the non-parametric rather than the parametric statistical methods should be used; or, other normality tests can also be run to confirm or refute close findings. The data for kestrels were not normally distributed but were when logarithmically transformed, allowing use of the Student's t-test

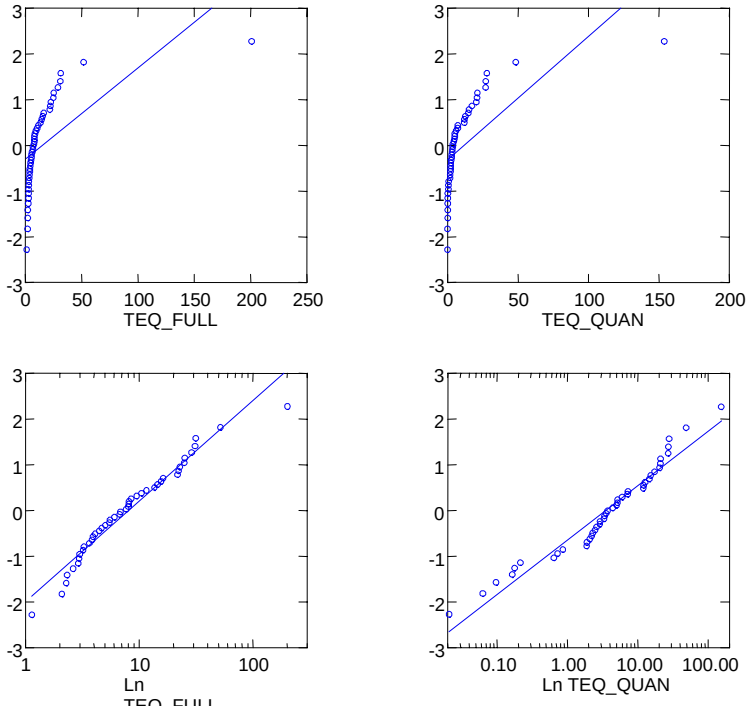
only for transformed data. (Note: All logarithmic transformation of data was carried out using natural logarithms [ln].)

Table 5. Probability (*p*) of deviation from normality for untransformed and natural ln-transformed data for American kestrel eggs using the Kolmogorov-Smirnov test

Measure	Mean	Standard Deviation	Deviation from Normality (*p*)
TEQ_{FULL}	15.1	29.9	< 0.001
TEQ_{QUAN}	11.9	27.0	< 0.001
ln TEQ_{FULL}	2.1	1.0	0.72
ln TEQ_{QUAN}	1.3	1.8	0.19

The distributions of the TEQ and TCDD-EQ data were also assessed for normality by producing probability plots (**Figure 8**).

Figure 8. Normal probability distributions for untransformed (upper) and ln-transformed (lower) TEQ concentrations (ppt) for American kestrel



These diagrams plot the measured values of the data points against the values that would be expected if the data exhibited a normal distribution. If the data can be described by a normal distribution, then the data should closely fit a straight diagonal line. Deviations from normality implies that the data cannot be analyzed using statistical procedures such as the Student's t-test or analysis of variance (ANOVA) because these procedures are based on the assumption that the data are normally distributed.

5.1.2.2 *Statistical Analysis*

To determine if there was a statistically significant difference between concentrations of TEQ for kestrels, a Student's t-test (with only a 1-tail criteria applied to test if on-post results exceed off-post reference results) was performed using ln-transformed data, which were compared using either separate or pooled variances (**Table 6**). This t-test and subsequent tests were conducted using two methods to analyze for homogeneity of variance, because no preferred method was stated in the Decision Procedure. Neither the TEQ_{FULL} nor the TEQ_{QUAN} data set showed a significant difference ($p < 0.05$) between on-post and off-post reference sample populations.

Table 6. Statistical significance (*p*) of mean differences by Student's t-tests on ln-transformed data for comparing TEQ concentrations (ppt) between on-post (O) and off-post reference (R) American kestrel eggs (using pooled and separate variances)

Data Set	Group	Number	Mean (ppt)	Standard Deviation	*p*	
					Separate	Pooled
TEQ_{FULL}	R	16	2.1	1.2	0.90	0.89
	O	30	2.1	0.9		
TEQ_{QUAN}	R	16	1.0	2.1	0.32	0.26
	O	30	1.6	1.3		

In addition to the Student's t-test, an ANOVA followed by Dunnett's test was conducted to allow valid multiple comparisons of the three distinct sample populations (**Table 7**). During the ANOVA procedure some values were identified as "statistical outliers." The concentration of TEQ in sample AKEG012 was the greatest value for kestrels in the study and was identified to be a statistical outlier. This sample was collected near Aurora reservoir; two other samples from this location did not show elevated concentrations of TEQ. The AKEG012 sample also contained the greatest concentration of TCDD-EQ as determined by the H4IIE-luc assay. For the full data set, no significant differences ($p < 0.05$) were detected between either RMA sample mean (core or periphery) and the mean of the off-post reference samples, either with or without the single statistical outlier (AKEG012) removed in the ANOVA.

Table 7. Statistical significance (*p*) of mean differences of TEQ concentrations (ppt) by ANOVA followed by Dunnett's test for ln-transformed data of core (C) or periphery (P) American kestrel eggs compared to the off-post reference (R) samples

Data Set	*p*	
TEQ_{FULL}	Core	Periphery
+ outlier	0.50	0.49
- outlier	0.39	0.43
TEQ_{QUAN}	0.42	0.17

5.1.2.3 *Power Analysis*

Statistical analyses were determined to be significant if the probability of a false positive result was less than 5%. That is, if α is less than 0.05, there is only a 5% chance of concluding that the means are different when in fact they are not different. A second statistical comparison parameter is termed beta (β) and represents the risk of a false negative conclusion, concluding the means are not different when in fact they are. The ability to avoid false negative conclusions indicates the statistical power of the test. If the statistical power ($1-\beta$) is small (i.e., β is great), then there is a relatively great risk of wrongly concluding that the means being tested are not different. To avoid these false conclusions, the BAS adopted the commonly used benchmark of requiring β to be less than 0.2 (i.e., statistical power [$1-\beta$] greater than 0.8). The power of a test is determined by the sample sizes, differences in the means, and variability within the sample populations. For each assessment used in the current study, a power analysis was carried out to determine whether the values of β and the statistical power were sufficient to provide a valid test that supports the conclusion that significant differences exist between sample means. If statistical power was too small, then the results of the comparison were determined to be inconclusive.

While the statistical power of the test, based on measured concentrations in kestrel eggs, was insufficient (**Table 8**), this may simply have been because there was no difference between the means. As indicated in the Decision Procedure, power analysis was also conducted to determine whether the study design had sufficient power to detect a difference of at least 15 ppt between the off-post reference and on-post sample populations. This evaluation was made by adding 15 ppt to each of the individual measurements. Since this process alters the standard deviation of the sample, the test was conducted using both the original greater standard deviation and the standard deviation generated from the modified data. Use of the unmodified standard deviation is equivalent to assessing the difference by simply adding 15 ppt to the mean of the on-post samples. In both cases, the study design had sufficient power to detect differences of 15 ppt or greater between the on-post and off-post reference sample populations for kestrel eggs (**Table 8**).

Table 8. Statistical significance (*p*) and power analysis (1-β) of mean differences in TEQ concentrations (ppt) between ln-transformed data for on-post (O) and off-post reference (R) American kestrel eggs

Measure	Group	Number	Mean (ppt)	Standard Deviation	*p*		Beta (β)	Power (1-β)
					Separate	Pooled		
TEQ_{FULL}	O	30	2.1	0.9	0.90	0.89	0.96	0.04
	R	16	2.1	1.2				
TEQ_{QUAN}	O	30	1.6	1.3	0.32	0.26	0.73	0.27
	R	16	1.0	2.1				
15 ppt difference								
TEQ_{FULL}	O	30	3.2	0.3	0.002	< 0.0001	0.02	0.98
	R	16	2.1	1.2				
TEQ_{QUAN}	O	30	3.1	0.3	0.001	< 0.0000	0.01	0.99
	R	16	1.0	2.1				

5.1.3 TCDD-EQ Results

Quantifiable concentrations of TCDD-EQs were found in only five of 46 American kestrel egg samples. Mean concentrations of TCDD-EQ in samples of kestrel eggs ranged from 3.0 to 15.5 ppt TCDD-EQ when using the full data set, while mean concentrations ranged from 0.6 to 13.6 ppt TCDD-EQ when the $TCDD\text{-}EQ_{QUAN}$ values were used (**Table 9**). As with the TEQ data, the measurements appeared to be skewed with the median concentrations being less than the mean concentrations, probably again due to the large number of non-detected results (results less than the MDL).

Table 9. Summary of TCDD-EQ concentrations (ppt) in American kestrel eggs collected in the core (C) or periphery (P) areas of the RMA or from an off-post reference (R) location

Measure	Group	Number	TCDD-EQ (ppt)			
			Mean	Minimum	Maximum	Median
$TCDD\text{-}EQ_{FULL}$	R	16	15.5	0.5	122	2.5
	P	19	3.0	0.5	11	2.5
	C	11	7.6	0.5	62	2.0
$TCDD\text{-}EQ_{QUAN}$	R	3	13.6	NA	122	NA
	P	1	0.6	NA	11	NA
	C	1	5.6	NA	62	NA

5.1.3.1 *Distribution Analysis*

The data were tested for normality by the Kolmogorov-Smirnov test (**Table 10**) and probability plots (not shown). The data were not normally distributed but were log-normally distributed with the exception of the sample set from the off-post reference areas. Because off-post reference samples were collected from more than one location, this is not surprising and the minor deviation from normality was not considered critical to the analysis. Therefore, ln-transformed data were used in the Student's t-test to determine the significance of any differences. Since the number of samples in which TCDD-EQ was detected was small, two detections in on-post samples, and three detections in off-post samples, distribution functions could not be calculated or compared.

Table 10. Probability (*p*) of non-normality for TCDD-EQ concentrations (ppt) in American kestrel egg samples as determined by Kolmogorov-Smirnov test

(R = reference, P = periphery, C = core, ln = log normal)

Group	Measure	*p*
R	$TCDD\text{-}EQ_{FULL}$	< 0.000
	ln $TCDD\text{-}EQ_{FULL}$	0.03
P	$TCDD\text{-}EQ_{FULL}$	< 0.000
	ln $TCDD\text{-}EQ_{FULL}$	0.40
C	$TCDD\text{-}EQ_{FULL}$	< 0.000
	ln $TCDD\text{-}EQ_{FULL}$	0.22

5.1.3.2 *Statistical Analysis*

The same statistical analyses were conducted for TCDD-EQs measured in the H4IIE-luc bioassay as those conducted for concentrations of TEQs. In the case of the bioassay data only

one data set was used. The quantitative data set, from which values less than the MDL were removed, was not used in this analysis because the number of samples greater than the MDL was only five. Concentrations of TCDD-EQs in kestrel eggs were not significantly different between eggs collected on the RMA and eggs collected from off-post reference locations (**Table 11**).

Table 11. Statistical significance (*p*) and power analysis of mean differences by Student's t-test between ln-transformed concentrations (ppt) of TCDD-EQ in on-post (O) and off-post reference (R) American kestrel eggs

Measure	Group	Number	Mean	Standard Deviation	*p*		beta (β)	Power (1-β)
					Separate	Pooled		
$TCDD\text{-}EQ_{FULL}$	O	30	0.8	1.1	0.231	0.18	0.998	0.002
	R	16	1.3	1.5				
15 ppt difference								
$TCDD\text{-}EQ_{FULL}$	O	30	2.9	0.3	NA	NA	0.00001	0.999
	R	16	1.3	1.5				

5.1.3.3 *Power Analysis*

A power analysis was conducted to determine whether the lack of significant difference between on-post and off-post reference sample populations was due to a lack of statistical power. There was insufficient power to distinguish between the means of concentrations of TCDD-EQs on-post and off-post reference as measured. However, there was sufficient statistical power to measure a difference of 15 ppt between the groups (**Table 11**).

5.1.4 Pattern Analysis

To determine whether patterns of contaminants were different between on-post and off-post reference samples, two pattern analysis techniques were planned. The first approach was PCA, which provides a visual interpretation of patterns of complex chemical mixtures but does not permit rigorous statistical hypothesis testing. The second technique was profile analysis, which permits statistical testing of hypotheses.

Because of the nature of the data sets collected, some variations from the Decision Procedure were necessary. Variations were also necessary to account for situations not anticipated in the SAP. The main variation was that the data were standardized before analysis. The standardization procedure takes the data for each congener and sets the average to zero and the standard deviation to 1. Standardization is extremely useful when performing PCA on data for PCDD/Fs due to the wide range in absolute concentrations of the different congeners. For example, 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) is typically in the 0- to 5-ppt concentration range while octachlorodibenzodioxin (OCDD) is usually in the 100 to 1,000 ppt range. Standardization removes all influence of the disproportionate absolute concentrations and gives each congener equal weighting in the analyses. Since all congeners are given equal weighting, this procedure also removes the need, as indicated in the Decision Procedure, to assess the impacts of congeners with low toxicity equivalent factor (TEF) values (< 0.0001). The inclusion of these congeners is important in the analysis, because the more chlorinated

congeners that have low TEF values are informative indicator compounds for specific sources of PCDD/Fs.

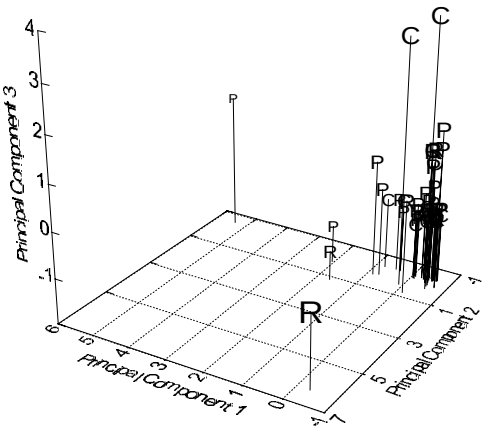
For the PCA on the kestrel data set only the full data set could be effectively used due to the large number of values less than the MDL. In PCA, the loss of a data value for a congener in a single sample would mean that the specific congener could not be used in the analysis. While some statistical methods can be used to approximate a value for these missing data, the methods vary in their applicability to different data sets.

For PCDD/F data, it is the most acceptable scientific and regulatory procedure to use ½ the MDL as was done for the full data set. While it is possible that use of such surrogate values could influence the outcome of the PCA, a systematic difference (i.e., a consistent difference in detection limits for either on-post or off-post reference results) would be required between the two sample groups. Because tissue samples were submitted to laboratories in a blind (coded) and random manner, with on-post and off-post specimens mixed in submission order, the possible bias with disparate MDLs should not exist. Furthermore, it is not considered possible that such influence would sufficiently alter the results as to mask the existence of a distinctive congener pattern. Assessment of the data demonstrated no such consistent differences (data not shown). Therefore, such influence by substituted proxy values for non-detected congener concentrations would also not be sufficient to alter the overall Decision Procedure for the kestrel egg data.

The PCA was performed using the full data set that contained all quantifiable data and ½ the MDL for concentrations below the MDL. For PCA, the data were first standardized to "z scores." These values are calculated by setting the mean and standard deviation of the data for each variable to values of zero and one, respectively. The PCA procedure then combines all the variability in the data set and generates a series of orthogonal axes to describe this variability. With this analysis, samples that have a similar congener profile will ordinate or cluster together to form a distinct group. In the case of organic contaminant analyses, 'background' samples generally form a cluster near the center of the distribution and those samples with a common profile of elevated concentrations from a point source release would be expected to form distinct clusters away from this center.

The results of the PCA for American kestrel eggs are presented in **Figure 9**. This figure is dominated by a close grouping of both off-post reference and on-post samples, which suggests that the patterns in these eggs represent a background profile of PCDD/Fs to which all birds in the study are exposed. This grouping may, to some extent, be the product of a significant number of non-detect values that can cause clustering, especially at trace-levels of concentrations where analytical noise is greater than found for results above the MQL. Standing apart from the central cluster are several samples from both off-post reference areas and from on-post. The samples that are separate from the central cluster do not form a separate grouping but are distributed around the graph. This outcome indicates that there is not a distinct pattern of PCDD/F congeners common to these samples as would be expected if a point source of contamination existed on the RMA.

Figure 9. PCA results for PCDD/F profiles in American kestrel eggs
(C = core, P = periphery, R = reference)



The lack of a pattern of contamination indicates the profile analysis would not be appropriate. Profile analysis is used as a quantitative statistical analysis of the difference between two groups of samples sharing two distinct contaminant profiles. As there is no unified pattern distinguishing the outlying samples in this analysis; profile analysis cannot be conducted.

5.1.5 Conclusions for American Kestrel Eggs

The decision matrix below (excerpted from **Table A** in **Section 3**) results in an outcome of *NO* for the American kestrel egg data. Concentrations of TEQ in kestrel eggs are not greater in on-post samples than in samples collected in off-post reference areas. There is no statistically significant difference in the average concentration of TEQ in on-post kestrel eggs than in the off-post kestrel eggs, thus the null hypothesis (H_o) is accepted for this step. Similarly, concentrations of TCDD-EQ are not significantly greater in on-post kestrel eggs. Statistical tests for these comparisons have sufficient power to detect the desired differences. Thus, the null hypothesis is also accepted for this step on TCDD-EQ results. Finally, PCA of the data indicate that there is no common pattern of PCDD/F congeners that distinguish on-post from off-post reference samples, leading to the acceptance of the null hypothesis.

Step I: Data Acceptability	Step II: TEQ ($H1_o$ or $H2_o$)	Step III: TCDD-EQ ($H3_o$ or $H4_o$)	Step IV: Pattern Analyses ($H5_o$)	Step V: BAS's Answer for Overall Decision
Yes	Accept H_o	Accept H_o	Accept H_o	NO

5.2 Great Horned Owl Livers

Great horned owls are of interest among the raptors because they are also resident species of the RMA and surrounding areas, although with wider home and foraging ranges (miles) in general than found for nesting American kestrels (mostly within a mile). Additionally, great horned owl specimens were available from the USFWS fortuitous specimen program for use in this Tier I Screening Study of exposure to and uptake of PCDD/Fs from potential RMA sources.

5.2.1 Samples Collected

Great horned owls were collected fortuitously, mostly during 1996, and were used in this study. Specimens were assigned to one of three groups based on apparent age at death. Four adults, nine juveniles, and three owls of unknown (likely adults, since juveniles are distinctive, but still uncertain) age were collected from the RMA. The off-post reference group consisted of five adult and five juvenile owls.

Table 12. Great horned owls (GHO) collected for the Tier I Field Study

GHO Age	On-Post GHO (O)	Off-Post Reference GHO (R)
Adult (A)	4	5
Juvenile (J)	9	5
Unknown	3	0

5.2.2 TEQ Results

Average concentrations of TEQs were greatest in on-post adults and least in off-post juveniles. The data for all groups were characterized by large standard deviations as a result of the relatively great variability within the sample groups. The TEQ concentrations in owls are summarized in **Table 13**.

Table 13. TEQ concentrations (ppt) in great horned owl livers from on-post (O) and off-post reference (R) samples

(Emaciated owl TEQs were adjusted per Section 4.3.2.2)

	Group	Number	Mean	Minimum	Maximum	Median
TEQ_{FULL}						
Adult	O	4	157.2	49.8	295.1	140.0
Juvenile	O	9	31.5	1.9	98.4	22.0
Unknown	O	3	47.2	13.9	95.6	32.2
Adult	R	5	36.0	10.4	121.6	12.4
Juvenile	R	5	22.1	8.2	34.0	23.8
TEQ_{QUAN}						
Adult	O	4	156.2	49.1	294.0	140.9
Juvenile	O	9	29.9	0.7	97.8	20.5
Unknown	O	3	45.9	12.0	94.8	30.8
Adult	R	5	31.4	3.3	110.4	11.1
Juvenile	R	5	13.0	0.5	30.3	12.3

The owls were grouped into categories of adult, juvenile, and unknown age (**Figure 10**). When the owls of unknown age were excluded from statistical analysis, there was a significant difference (p = 0.02) between on-post adults and juvenile owls in both the full and quantitative data sets (**Table 14**). This difference between TEQs in younger vs. older owls began to disappear when on-post owls of unknown age were included as adults (p = 0.05) and was absent in off-post owls. Therefore, each age class of owls was analyzed separately.

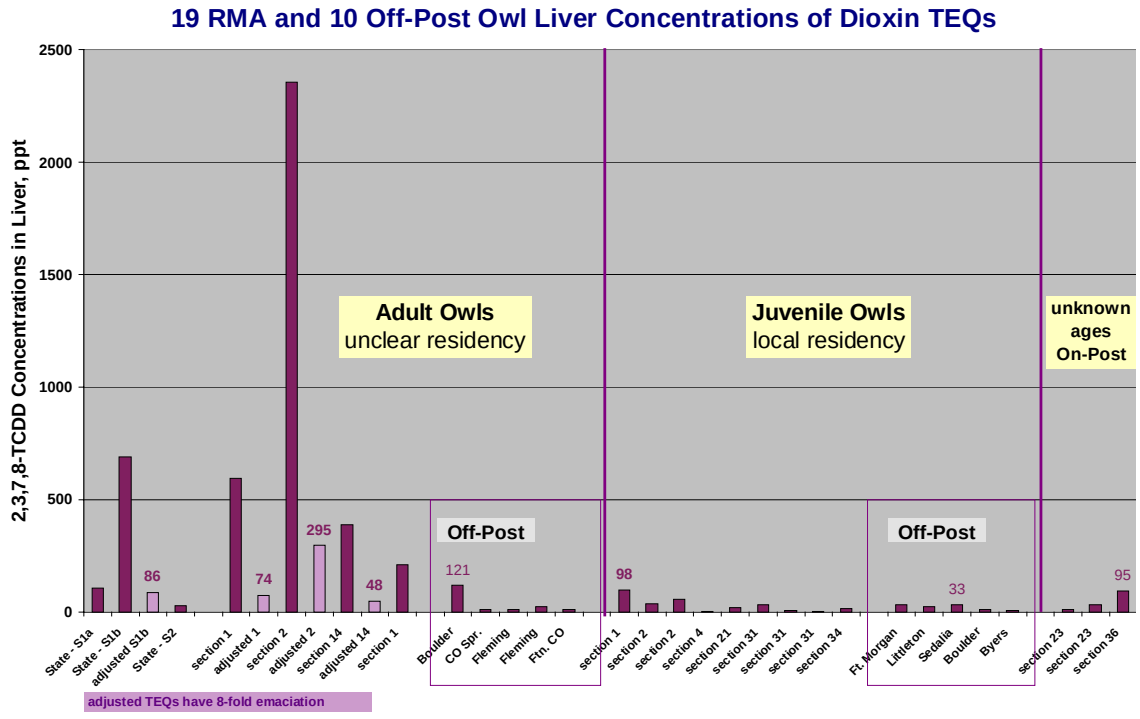
Table 14. Statistical significance (p) of mean differences by Mann-Whitney U-tests comparing differences in TEQ concentrations (ppt) for different age groups of great horned owl liver samples

(A = adult, J = juvenile)

Group	Number	p	
On-post GHO	**(A, J)**	**TEQ_{FULL}**	**TEQ_{QUAN}**
Unknown age excluded	4, 9	0.02	0.02
Unknowns age as adults	7, 9	0.05∗	0.05∗
Off-post reference GHO	5, 5	0.75	0.60

∗Significance (p) was not < 0.05, although close at p = 0.0502

Figure 10. Plot of TEQs observed in livers from great horned owls collected on-post and from off-post reference areas, categorized by ages



5.2.2.1 *Distribution Analysis*

The distribution of the owl data was tested using the Kolmogorov-Smirnov test with Lillifors distribution both before and after ln transformation (**Table 15**). Because of the TEQ differences between age class, each age class and location was tested independently as was the effect of including the unknown aged owls as adults. Of all the data sets, only the untransformed data for the adult off-post reference owls showed a significant deviation from normality.

Table 15. Significance (*p*) of Kolmogorov-Smirnov test for deviation from normal distribution for great horned owl liver data

(a *p* value less than 0.05 indicates a distribution significantly different from a normal distribution)

Group	N	Measure	*p*
On-post juvenile	9	TEQ_{FULL}	0.70
	9	TEQ_{QUAN}	0.44
	9	ln TEQ_{FULL}	0.88
	9	ln TEQ_{QUAN}	0.41
Off-post reference, juvenile	5	TEQ_{FULL}	1.00
	5	TEQ_{QUAN}	1.00
	5	ln TEQ_{FULL}	0.68
	5	ln TEQ_{QUAN}	0.49
Off-post reference, adult	5	TEQ_{FULL}	0.01
	5	TEQ_{QUAN}	0.01
	5	ln TEQ_{FULL}	0.17
	5	ln TEQ_{QUAN}	1.00
On-post, adult unknowns excluded	4	TEQ_{FULL}	0.64
	4	TEQ_{QUAN}	0.64
	4	ln TEQ_{FULL}	0.97
	4	ln TEQ_{QUAN}	0.98
On-post, adults unknowns = adult	7	TEQ_{FULL}	0.14
	7	TEQ_{QUAN}	0.14
	7	ln TEQ_{FULL}	1.00
	7	ln TEQ_{QUAN}	1.00

5.2.2.2 *Statistical Analysis*

Student's t-tests were conducted on the owl data using either untransformed data for juveniles or ln-transformed data for adults (**Table 16**). There was not a statistically significant difference ($p < 0.05$) in TEQs between on-post and off-post reference liver samples for juvenile owls. For the adult owls, differences in TEQs were statistically significant *(*$p < 0.05$) when the unknown aged owls were excluded, but were not significant when the unknown aged owls were included as adults. These statistical tests were only conducted on the more conservative TEQ_{FULL} datasets, as explained in the decision criteria (**Appendix** B), since the TEQ_{QUAN} data set was intended to be used for quantitative congener profile analyses—if possible.

5.2.2.3 *Power Analysis*

To determine whether the experimental design had sufficient power to detect the desired differences a power analysis was carried out (Table 17). This analysis was used to determine

whether the observed lack of significant difference (seen in two of the three comparisons shown in Table 16) was due to a limited sample size or greater variance or a smaller minimal detectable difference to be tested, rather than to the actual lack of a significant difference between the mean TEQs of compared groups. None of the possible sample comparisons had sufficient statistical power to conclude that there was a lack of significant differences based upon available data.

Table 16. Statistical significance (*p*) of Student's t-tests for differences in means of TEQ concentrations (ppt) for great horned owl liver data
(values are for separate variance estimates, with values for pooled variances provided in brackets)

Age Class		Number (O, R)	*p*			
			TEQ_{FULL}	TEQ_{QUAN}	ln TEQ_{FULL}	ln TEQ_{QUAN}
Adults	unknowns excluded	4,5	NA	NA	0.03 (0.03)	0.02 (0.03)
	unknowns as adults	7,5	NA	NA	0.08 (0.08)	0.07 (0.06)
Juveniles		9,5	0.43 (0.53)	0.18 (0.27)	NA	NA

A test of power analysis for a minimum of a 15 ppt difference was not conducted because the means (O compared to R) were already different by at least 15 ppt in all cases; hence, there was no point in conducting a power analysis for off-post reference values plus 15 ppt. It is considered more likely, and usually the case, that the small sample size contributed most to the lack of power per the BAS requirements. Had either the minimal detectable difference or group sample sizes been greater than 15 ppt or four to nine individuals, respectively, or had the variances (or standard deviations) been smaller, then more power would have been attained.

Table 17. Power analysis for statistical differences (*p*) between TEQ concentrations (ppt) in different age classes of great horned owls collected from on-post (O) and off-post reference (R) locations
(means and standard deviations were used with $\alpha = 0.05$ to determine β and power; U = unknown)

Age Class	Number O, R	Mean O (ppt)	Mean R (ppt)	Standard Deviation O	Standard Deviation R	Alpha (α)	Beta (β)	Power ($1-\beta$)
TEQ_{FULL}								
Adult	4, 5	157.2	36.0	115.7	48.2	0.05	0.38	0.63
U = Adult	7, 5	110.1	36.0	103.7	48.2	0.05	0.46	0.54
Juvenile	9, 5	31.5	22.1	30.9	11.6	0.05	0.79	0.21
TEQ_{QUAN}								
Adult	4, 5	156.2	31.4	115.3	44.7	0.05	0.34	0.66
U = Adult	7, 5	110.1	31.4	103.7	44.7	0.05	0.41	0.60
Juvenile	9, 5	29.9	13.0	30.9	12.1	0.05	0.55	0.45

5.2.3 TCDD-EQ Results

The TCDD-EQ concentrations are presented in **Table 18**. As discussed previously in Section 4.3.2, the concentrations of TCDD-EQ in livers from the three emaciated owls that were collected on-post were also adjusted downward by a factor of 8. The data sets used for statistical analysis of TCDD-EQ were the full data set with adjusted data that contained ½ the MDL for values less than the MDL. The quantitative data set could not be used in these analyses due to sample numbers of one or zero in three of the four age/location data groups after elimination of all data below the MDL.

Table 18. Summary of $TCDD\text{-}EQ_{FULL}$ concentrations (ppt) measured in great horned owl livers from on-post (O) and off-post reference (R) locations

Age Class	Location	Number	Mean	Minimum	Maximum	Median
Adult	O	4	489.5	188.0	1,070.0	350.0
Adult (adjusted)	O	4	102.0	32.1	188.0	94.6
Juvenile	O	9	15.5	0.5	119.0	2.5
Unknown	O	3	2.8	0.5	5.0	3.0
Adult	R	5	40.0	0.5	187.0	2.5
Juvenile	R	5	2.8	0.5	9.5	1.0

Note: TCDD-EQ concentrations in emaciated owls were adjusted as described in Section 4.3.2.2.

5.2.3.1 *Distribution Analysis*

As with the TEQ assessment, statistically significant ($p < 0.05$) differences in TCDD-EQ concentrations were detected between adult and juvenile birds. Therefore, age classes were analyzed separately. As with the TEQ results, the distributions of the measured owl TCDD-EQ concentrations, determined by the H4IIE bioassay, were log normally distributed (**Table 19**).

Table 19. Kolmogorov-Smirnov tests for statistical significance (*p*) of deviation from normality for great horned owl liver TCDD-EQ data

(A = adult, U = unknown, J = juvenile, R = off-post reference, and O = on-post)

Measure	Age	Site	*p*
$TCDD\text{-}EQ_{FULL}$	A	R	0.003
	A	O	0.86
	U	O	1.00
	J	R	0.02
	J	O	0.00
$ln\ TCDD\text{-}EQ_{FULL}$	A	R	0.88
	A	O	1.00
	U	O	0.57
	J	R	0.45
	J	O	0.67

5.2.3.2 *Statistical Analysis*

Because of the small sample sizes available, statistical analysis was carried out using both the non-parametric Mann-Whitney U-test (**Table 20**) and the parametric Student's t-test, with only a 1-tail criteria applied to examine if on-post results exceed off-post reference results (**Table 21**). As found with the TEQ analysis, no significant differences were noted between juvenile on-post owl livers and juvenile off-post reference owl livers. There were also only significant differences in concentrations of TCDD-EQ between adult on-post owl livers and adult off-post, reference owl livers when separate variances were used and when owls of unknown age were disregarded.

Table 20. Statistical significance (*p*) of the difference of means by Mann-Whitney U-tests between concentrations (ppt) of TCDD-EQ (bioassay) for on-post (O) and off-post reference (R) populations of great horned owls

(Tests conducted by excluding unknown age owls or by including these owls as adults)

Age	Number (O, R)	*p*
Unknown excluded		
Adult	4, 5	0.09
Juvenile	9, 5	0.46
Unknown as adults		
Adult	7, 5	0.33
Juvenile	9, 5	0.46

5.2.3.3 *Power Analysis*

As with the TEQ assessment, a power analysis was performed on TCDD-EQ results to determine whether the tests had sufficient statistical power (**Table 22**). Only when the unknown age owls are included as adults is there sufficient power to detect a difference between the means.

Table 21. Statistical significance (*p*) of Student's t-test for differences in mean concentrations (ppt) of TCDD-EQ for great horned owl livers

(Values are for separate variance estimates with pooled variances provided in brackets)

Age	Number (O, R)	*p*
Unknown excluded		
Adult	4, 5	0.05 (0.05)
Juvenile	9, 5	0.45 (0.50)
Unknown as adults		
Adult	7, 5	0.40 (0.39)
Juvenile	9, 5	0.45 (0.50)

5.2.4 Pattern Analysis

The results of the PCA for great horned owl liver samples are presented in **Figure 11**. No distinct cluster was apparent; in fact, the samples ordinate in different directions away from the central cluster. Without multiple samples representing each distinctive congener profile, it was difficult to identify a common source or profile of congeners. The lack of a consistent pattern of contamination indicates that the profile analysis would not be appropriate. Profile analysis is used as a statistical analysis of the quantitative difference between two groups of samples that share two distinct contaminant profiles. Because there was no unified pattern to distinguish the outlying samples in this analysis, follow-on profile analysis could not be conducted.

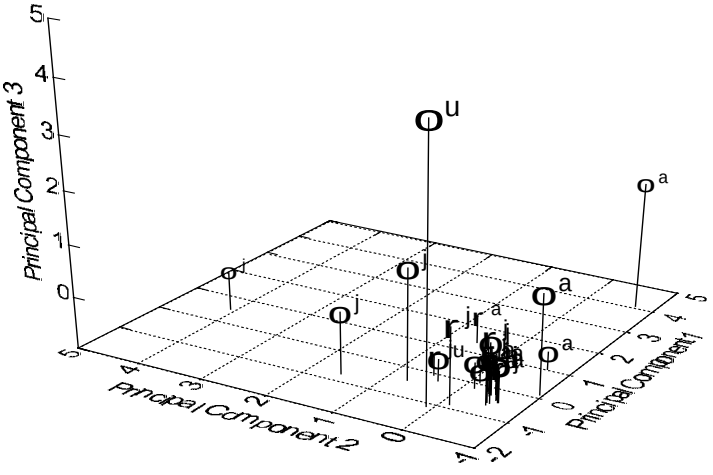
Table 22. Power Analysis for differences in TCDD-EQ concentrations (ppt) in great horned owl livers

(O = on-post, R = off-post, U = unknown)

Measure	Number (O,R)	Mean O (ppt)	Mean R (ppt)	Standard Deviation O	Standard Deviation R	Alpha (α)	Beta (β)	Power (1-β)
$TCDD\text{-}EQ_{FULL}$								
Adult	4, 5	102.3	40.0	71.8	82.2	0.05	0.67	0.33
U = adult	7, 5	59.7	40.0	73.5	82.2	0.05	0.89	0.11
Juvenile	9, 5	15.5	2.8	38.9	3.8	0.05	0.75	0.25
15 ppt Increase $TCDD\text{-}EQ_{FULL}$								
Adult	4, 5	117.3	40.0	71.8	82.2	0.05	0.56	0.44
U = adult	7, 5	74.7	40.0	73.5	82.2	0.05	0.81	0.19
Juvenile	9, 5	30.5	2.8	38.9	3.8	0.05	0.32	0.68

Figure 11. PCA results of PCDD/F profiles in great horned owl livers

(o^u = on-post, unknown age, o^a = on-post adult, o^j = on-post juvenile, r^a = off-post reference adult, and r^j = off-post reference juvenile)



5.2.5 Conclusions for Owls

The outcome is ***Inconclusive*** for the owl liver data. The owl data do not fully meet the data acceptability criteria as set forth in the Decision Procedure. Uncertainty with this data set is due to confounders such as small sample size, deficits in spatial representation, and uncertain residency status for adult owls that can range off-post. However, even though the data have a high level of uncertainty, the data were determined to be useable and sufficient for semi-quantitative analyses. The analysis and interpretation of the owl liver data was made difficult by the many uncertainties introduced because of the use of fortuitous samples and because of the limited number and non-representative spatial distribution of the samples. While many of the uncertainties, such as the patchy spatial distribution of the samples, could not be addressed in the given Tier I Field Screening Study, professional scientific judgment was used to minimize the uncertainties associated with emaciation and unknown owl ages.

To address the effect of emaciation on the concentrations of TEQ and TCDD-EQ in liver tissue, a literature search and whole-body analysis of the available owl carcasses were conducted. Based on these efforts and scientific judgment, a reduction of 8-times the measured concentration was used to downward adjust the PCDD/F concentrations in liver tissues from the emaciated owls.

In addition, the presence of owls of unknown age became a noteworthy issue when it was determined that there was a statistically significant difference in the liver concentrations depending upon the age class of owls. Thus, to address this uncertainty the unknown-aged owls were treated as adults in one set of analyses and excluded from the adult group in a second set of analyses.

Excluding the unknown-aged owls from the statistical analysis resulted in barely rejecting the null hypothesis ($p = 0.05$), i.e., the on-post adult owl liver concentrations are greater than the off-post reference owl liver concentrations. If the unknown-aged owls are included as adults, the difference in TEQ liver concentrations between the on-post and off-post adult owls was no longer significant at the designated level ($p < 0.05$), but with a p value of 0.06, the results indicate that the groups are close to being significantly different.

Because the Decision Procedure could not anticipate all the possible outcomes and thus did not provide guidance on the interpretation of the results, scientific judgement was used to determine the outcome of TEQ analysis for owl livers. The decision for the chemical analysis in owls was that concentrations of TEQs in livers of adult on-post owls (excluding unknown age owls) were greater than concentrations in off-post reference owl livers; i.e., reject the null hypothesis (H_o) (see Step II in text box below). This decision was made even though two of the three comparisons were not statistically significant as shown in **Table 16**.

In addition, the TCDD-EQ analysis resulted in an ***Inconclusive*** outcome because the statistical power was not adequate to see a difference in the on-post versus off-post reference samples even when the unknown-aged owls were assumed to be adults. The statistical analysis also had insufficient power to detect the pre-determined difference of 15 ppt in any of the tests. Analysis of the results could determine how great a difference beyond 15 ppt that the samples could have detected with a power of 80%, but this was not done nor deemed essential by the BAS scientists

for the purposes of this Tier I Field Screening Study (this could be done if the Tier I Field Study is pursued).

Finally, there was no evidence from the PCA that a specific PCDD/F congener profile was present in on-post samples compared to the off-post reference samples. Thus, the outcome of the pattern analysis was to accept the null hypothesis (H_o).

Step I: Data Acceptability	Step II: TEQ ($H1_o$ or $H2_o$)	Step III: TCDD-EQ ($H3_o$ or $H4_o$)	Step IV: Pattern Analyses ($H5_o$)	Step V: BAS's Answer for Overall Decision
No	Reject H_o	Inconclusive	Accept H_o	YES or Inconclusive

5.3 Carp Eggs

Carp are a suitable representative aquatic species on the RMA. Carp eggs were chosen for analysis because carp are bottom feeders and were expected to bioaccumulate persistent organic contaminants such as PCDD/Fs as they have been shown to do effectively for OCPs at the RMA.

5.3.1 Samples Collected

Carp eggs were collected from 16 sexually mature females taken from Lower Derby Lake and from two carp at an off-post reference location.

5.3.2 TEQ Results

Concentrations of TEQ derived from PCDDs and PCDFs in carp eggs were low with mean concentrations for off-post reference samples and on-post samples of 0.6 and 0.9 ppt (**Table 23**). These values compare favorably with the greatest TEQ concentration detected in off-post reference samples of eel tissue that were collected from a relatively pristine New Zealand environment (maximum 0.4 ppt TEQ) (Buckland et al. 1998).

Table 23. Summary of TEQ concentrations (ppt) in carp egg samples

Measure	Group	Number	Mean	Minimum	Maximum	Median
TEQ_{FULL}	O	16	0.9	0.6	1.1	0.9
TEQ_{QUAN}	O	10	0.2	0.1	0.5	0.2
TEQ_{FULL}	R	2	0.6	0.5	0.6	0.6
TEQ_{QUAN}	R	2	0.2	0.1	0.3	0.2

5.3.3 TCDD-EQ Results

Mean concentrations of bioassay-derived TCDD-EQs in carp eggs from the RMA ranged from 6.3 to 22.7 ppt TCDD-EQ, while the mean concentrations in carp eggs from off-post reference areas ranged from 0 to 1.3 ppt TCDD-EQ for the full data set (**Table 24**).

5.3.4 Pattern Analysis

Because of the small number of off-post reference samples and the small concentrations of PCDDs and PCDFs measured in the carp eggs, pattern recognition techniques could not be validly applied to the carp data set.

Table 24. Summary of TCDD-EQ concentrations (ppt) in carp eggs from on-post (O) and off-post reference (R) locations

Measure	Location	Number	Mean	Minimum	Maximum	Median
$TCDD\text{-}EQ_{FULL}$	O	16	6.3	0.5	38	2.5
$TCDD\text{-}EQ_{QUAN}$	O	3	22.7	2	38	28
$TCDD\text{-}EQ_{FULL}$	R	2	1.3	1	1.5	1.3
$TCDD\text{-}EQ_{QUAN}$	R	0	NA	NA	NA	NA

5.3.5 Conclusions for Carp Eggs

The decision matrix resulted in an outcome of ***Inconclusive***. The limited data set for these samples, and the high frequency of MDL values, particularly from off-post reference locations, precluded the meaningful use of statistical tests and pattern analysis techniques. Concentrations of TEQ and TCDD-EQ were sufficiently small that further analysis would not be warranted.

Step I: Data Acceptability	Step II: TEQ ($H1_o$ or $H2_o$)	Step III: TCDD-EQ ($H3_o$ or $H4_o$)	Step IV: Pattern Analyses ($H5_o$)	Step V: BAS's Answer for Overall Decision
No	Inconclusive	Inconclusive	not applicable	Inconclusive

6.0 DISCUSSION

In this section, all the decision steps were combined to yield a final decision. The structure of the Decision Procedure is presented in tabular and graphic forms in Section 3.0, and a synopsis of the procedure is included as **Appendix** B. The Decision Procedure was pre-designed to allow for proper, and hopefully less equivocal, integration of study results from different methods of analysis (TEQs, TCDD-EQs, and PCA/pattern analysis) and from the different species analyzed. The principal question was

Are concentrations of PCDD/Fs in representative biota samples collected on RMA greater than those in comparable samples from off-post reference sites?

It should be noted that the following section requires perspective on the scientific caveats related to the design and results of this Tier I Field Study; please refer to footnotes for the decision matrix found in the summary tables in Section 3 and detailed in **Appendix** B. Briefly, these main caveats are listed here as follows:

- "Concentration" in this context means toxic-equivalents of TCDD generated by the 17 PCDD/F congeners that have Ah-R agonist activity. It is important to note that only Step II (TEQ) provided a direct measure of PCDD/F concentration (and indirect activity); however, Step III (TCDD-EQ) provided an indirect measure (with direct activity).
- In this study, an inconclusive decision indicated that the general question posed could not be answered "yes" or "no" with confidence. An inconclusive outcome would likely result in further analysis by the BAS. In this study, small sample numbers generally caused or were believed to contribute most to the inconclusive results. Therefore, further assessment by the BAS with the available data would be difficult.
- While TCDD-EQ results alone cannot answer the general question posed in the Tier I Field Study, TCDD-EQs could be used in a weight-of-evidence approach to help guide both the interpretation of toxicological significance (especially if PCDD/Fs are the predominant cause of Ah-R activity) and possible future studies at the RMA. The BAS generally recognized that TCDD-EQs, if not overshadowed by other Ah-R activity, could potentially show differences (similar to TEQs) in exposures to PCDD/F concentrations between on-post samples and off-post samples.

6.1 Results for American Kestrel Eggs and Great Horned Owl Livers

For American kestrels, the null hypothesis was not rejected in either Step II or III, nor did the pattern analysis distinguish unique sources on-post compared to off-post reference areas. In addition, independent tests that compared concentrations in the core and peripheral areas, relative to the concentrations at off-post reference locations were conducted. There were no significant differences in concentrations between samples of kestrel eggs that were collected from the core and the peripheral areas of the RMA. The PCA results did not indicate any consistent pattern of congeners associated with the core or periphery of the RMA that would distinguish these samples from samples collected in off-post reference areas. Therefore, data for the American kestrel resulted in the answer,

No, concentrations of PCDD/Fs in American kestrel egg samples collected on the RMA are not greater than those in comparable samples from off-post reference sites

The data for great horned owls were considerably more complex than for American kestrels and a substantial amount of scientific judgment had to be applied to the interpretation of results for the owls, due mainly to complications caused by emaciation and disparate ages of the fortuitous specimens. Despite the comprehensive nature of the Decision Procedure, situations were encountered in the assessment of the owl data that were not considered in the procedure. Treatments of these situations were conducted based on the best scientific judgement with a tendency to be conservative; i.e., where uncertainty existed, decisions about science issues were made to ensure protection.

As has already been mentioned, three of the four adult owls collected on the RMA showed signs of advanced emaciation, which appeared very likely to have resulted in a major redistribution of PCDD/Fs in the body from typical fat stores to the liver, resulting in anomalously elevated concentrations of these chemicals in the liver. These elevated concentrations are likely false positive elevations due to disease. The Decision Procedure also did not account for dealing with the occurrence of owls of unknown ages.

In addition, there was a statistically significant difference in TEQs between adult (adjusted for emaciation) and juvenile owls on-post, again possibly because of the effects of emaciation in the adults. The difference in the age classes meant that statistical analyses had to be carried out separately on the two age classes. This division by age further reduced sample sizes and consequently reduced the power of the statistical analyses. There was also no indication in the Decision Procedure of how to interpret different decision outcomes for adults and juveniles owls.

After consideration of all the available evidence it is the opinion of the BAS that

It is inconclusive whether concentrations of PCDD/Fs in great horned owl liver samples collected on RMA are greater than those in comparable samples from off-post reference sites.

However, if there were any differences that were unable to be statistically detected with the available data, then based on the observations of TEQs in terms of adjusted magnitude and spatial scales, these differences would not be expected to be great, thereby minimizing the likelihood of both exposure for biomonitoring of sources and any associated toxic risks on ecological scales. Furthermore, the thorough evaluation of TCDD-like PCBs did not indicate that these congeners were risk drivers in most cases, nor were they necessarily required to resolve mass balance differences between results for TEQs and TCDD-EQs; however, this potentially valuable need to account for PCB contributions to TEQs and risks could not be ruled out ahead of time.

The next step of the Decision Procedure for the terrestrial ecosystem was to combine the results for the owls and kestrels. The Decision Procedure stated

> If the overall outcome for either or both species is inconclusive, without a "yes" for either, the conclusion of the Tier I Field Study is ***Inconclusive*** for the terrestrial environment.

American Kestrel Decision	Great Horned Owl Decision	Overall Terrestrial Species Decision
NO	Inconclusive	Inconclusive

Therefore, the conclusion for the terrestrial environment was *Inconclusive*.

Although the presence of three adult owls with elevated concentrations of PCDD/Fs in the liver would indicate that PCDD and PCDFs may be elevated on the RMA, the level of uncertainty in this finding was high. In addition, the remaining findings from this study indicated that PCDD/Fs should not be considered as COCs at the RMA.

The BAS also considered other studies that could provide information on exposures to PCDD/F at the RMA. These studies included

1) *Induction of Immunotoxicity and Mixed-Function Oxygenase Activity as Biomarkers of Exposure to Environmental Contaminants in the Deer Mouse* (*Peromyscus maniculatus*) (Gard 1995).

2) *Characterization of Dioxins, Furans and PCBs in Soil Samples Collected from the Denver Front Range Area* (EPA 2000a).

3) *Characterization of Dioxins, Furans and PCBs in Random Soil Samples Collected from the Rocky Mountain Arsenal* (EPA 2000b).

4) *Characterization of Dioxins, Furans and PCBs in Soil Samples Collected from Historic Use Areas of the Rocky Mountain Arsenal* (EPA 2000c).

5) *Results of a Survey of Fortuitous Specimens and Soil Samples for Rocky Mountain Arsenal for Trace Organic Contaminants, Arsenic, and Mercury* (EcoLogic 1996).

The Gard study looked for possible specific biomarkers of PCDD/F exposure in deer mice at the RMA. Little indication of PCDD/F exposure was found under the study conditions.

The Denver Front Range dioxin soil study collected soil samples that were associated with locations near certain wildlife collection locations on the RMA and at several off-post reference areas. The highest off-post owl and kestrels were associated with low (approximately 1- to 2-ppt TEQ) background soils. Thus, no association between PCDD/F concentrations in soil and biota tissues could be determined from this outcome in off-post reference samples. There were small elevations of PCDD/F in soils at the RMA in areas that were co-located with elevated owl liver concentrations, but the data did not permit robust correlation analysis. The soil study results did not contradict findings of the Tier I Field Study in biota, and were generally consistent with the conclusion that a possible small source of PCDD/Fs existed on the RMA with low concentrations.

The results of the current study were in general agreement with those of the previous CDPHE study (EcoLogic 1996). In both studies, the concentration of PCDD/Fs was increased in the livers of emaciated great horned owls. While these observations indicated that exposure of owls in the current study did not provide evidence of more widespread contamination of the terrestrial ecosystem, it also did not provide conclusive evidence of a RMA origin of the PCDD/Fs present in owl tissues. The absence of significant concentrations of PCDD/Fs in juvenile owls and kestrels was in agreement with earlier observations from red-tailed hawk and small mammals that demonstrated no significant accumulation of PCDD/F in the terrestrial ecosystem of the RMA.

6.2 Results for Carp

The decisions for both TEQ and TCDD-EQ for carp were ***Inconclusive***. The small concentrations of PCDD/Fs should probably have resulted in a “no” finding (i.e., PCDD/Fs are not COCs at the RMA), but the lack of statistical power as designated in the Decision Procedure meant that an inconclusive finding must be made. While the statistical power of the analyses was lower than required, the concentrations of PCDDs and PCDFs measured in the fish from on-post were as small as would be expected for background concentrations of these compounds in unimpacted locations. Therefore, the best scientific judgement of the BAS was that these chemicals were not a cause for concern in the aquatic environments of the RMA.

7.0 CONCLUSIONS

The current study examined the possibility of a bioavailable source of PCDD/Fs on the RMA. The conclusion that PCDD/Fs are not COCs was based on results from analysis of PCDD/Fs (both chemical-specific and bioassay methods), pattern analysis, and toxicity considerations.

Multiple lines of evidence were used to reach the final decision. Concentrations of PCDD/Fs were present at background concentrations in carp collected from the aquatic environment on-post. Similarly, PCDD/F concentrations in American kestrel eggs collected on-post were as small or smaller than concentrations measured in eggs from off-post reference locations in the Denver metropolitan area. Finally, PCDD/F concentrations measured in the livers of juvenile great horned owls collected on-post were not different than concentrations measured in juvenile owls collected from off-post reference locations. However, the three highest concentrations were in the three juveniles collected in the South Plants area of the RMA. Only adult great horned owl livers contained concentrations of PCDD/Fs that were greater on-post than off-post.

Finally, the pattern of PCDD/F congeners present in the samples from the RMA was compared using principal components analysis to determine whether a common pattern of contaminants on-post could indicate the presence of an on-post source of contamination. No consistent patterns were detected in the samples.

Concentrations of PCDD/Fs were also compared to concentrations that were expected to result in adverse effects in wildlife species (**Appendix** G). Concentrations of PCDD/Fs measured in carp eggs were less than concentrations that would be expected to cause adverse effects either directly in the carp themselves, or in birds feeding on the carp, such as the bald eagle that is known to be particularly sensitive to the adverse effects of these compounds. The average concentrations detected in this study were less than 1 ppt of TEQ compared to predicted effects concentrations of 170 to 1,200 pg/g (wet weight [ww]) for reproductive effects in carp eggs.

Concentrations of TEQ in American kestrel eggs averaged less than 20 ppt at off-post reference locations and less than 10 ppt on the RMA. These values can be compared with a predicted-effects concentration based on a no observed adverse effect level (NOAEL) calculation of 70 pg/g (ww). It therefore seems unlikely that current PCDD/F concentrations in American kestrel eggs on the RMA are causing adverse effects on reproduction.

The toxicity reference value derived for great horned owl liver is 15 pg/g (ww) and is based on several conservative assumptions. Only the average concentration for juvenile owls from off-post reference locations was less than this value. The average concentration of TEQs in adult great horned owl livers on the RMA was approximately 10-fold greater than this NOAEL value, suggesting possible cause for concern. These findings are in general agreement with analyses for other high trophic level organisms on a global scale, which suggested that concentrations of PCDD/Fs in wildlife were relatively close to concentrations known to cause adverse effects (Jones et al. 1996). However, the average concentration of TEQs in livers of adult owls from off-post reference locations was also approximately 2-times greater than this concentration and the average concentration for the three unknown-age owls on the RMA was similar to that observed in off-post reference birds. Taken together, this suggests a possibility of low excess risk to owls on the RMA, as well as potentially in the general Denver metropolitan area.

However, much of this estimated risk is driven by large uncertainty factors due to extrapolations from weak data sets and therefore may not actually reflect adverse effects.

During this Tier I Field Study, corresponding studies of PCDD/Fs and PCBs in soils collected on the RMA and from off-post areas were conducted. Results of these soil studies showed similar findings of small elevations of PCDD/Fs in localized areas of South Plants (Figure 12 [next page] and Map 2 in Section 10). Average concentrations in soils were similar in on-post samples and off-post samples, and all samples were much less than levels of health risk concern.

While the BAS was confident that there was not a large, available source of PCDD/Fs on the RMA, the presence of a small, localized source deserved consideration. The two adult and several juvenile great horned owls with the most elevated PCDD/F concentrations were collected near South Plants, an area that is currently undergoing remediation. This same area also produced a cluster of soil samples with somewhat elevated PCDD/F concentrations (Figure 12, EPA 2000a), further suggesting the existence of a localized source. However, the PCA for owl data did not show any distinct patterns, using adjusted data. While visual inspection of the predominant congeners in the co-located soils and owl tissues at South Plants does suggest some common and perhaps unique patterns, it is an uncertain association; furthermore, soil congener patterns have not yet been evaluated for the soils at the RMA South Plants area. It is probable that any past source of PCDD/Fs in the core area on RMA is currently planned to be remediated along with the other organochlorine pesticide contamination in soils. It was the opinion of the BAS that biomonitoring programs by the USFWS were already in existence that could be used to verify that any potential source areas would be adequately removed, as extrapolated from measured dieldrin concentrations in biota. (Note: Human TEFs were used with the assumption of 100% bioavailability for producing the soil TEQs while bird TEFs were used to produce the owl TEQs. This distinction and assumption for human TEFs also applies to the rest of the soil TEQs at RMA that are shown in Map 2 in Section 10.)

Figure 12 is a map of the central South Plants area of the RMA (see next page) showing in detail the confined low levels of elevated TEQs that were co-located in owl tissues (circles and triangles) and in surface soils (squares).

Figure 12. Confined low levels of elevated TEQs were co-located in owl tissues And in surface soils at the central South Plants area of the RMA

PDF to be found on the Web site

8.0 TECHNICAL RECOMMENDATIONS

It is the best scientific opinion of the BAS scientists that PCDD/Fs are not a contaminant of concern (COC) at the RMA. Any small, localized source of PCDD/Fs in South Plants would very likely be removed by current remediation activities.

Therefore, the evaluation of PCDD/Fs in some samples of the ongoing Biomonitoring Program (USFWS) is recommended. This will provide additional assurance that the remediation of the post will have adequately reduced any potential sources of PCDD/F contamination.

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10.0 MAPS

RMA Map 1 (See next page)

MAP 1. BIOTA RESULTS FOR RMA ON-POST AND OFF-POST REFERENCE WILDLIFE IN TIER I FIELD DIOXIN STUDY, INCLUDING CDPHE (ECOLOGIC) RESULTS FROM PRELIMINARY STUDY IN 1995, AND THE SOIL SAMPLING LOCATIONS AT RMA FOR THE DENVER FRONT RANGE STUDY (16 X 22 INCH GIS MAP)

MAP 1

PDF to be found on the Web site

RMA Map 2 (see next page)

MAP 2: TEQ CONCENTRATIONS IN SURFACE SOILS AT RMA FOR 17 PCDD/F CONGENERS

MAP 2

PDF to be found on the Web site

Appendix A

Summary of State of Colorado Study: Results of a Survey of Fortuitous Specimens and Soil Samples at Rocky Mountain Arsenal for Analyses of Trace Organic Contaminants, Arsenic, and Mercury

SUMMARY OF STATE OF COLORADO STUDY: RESULTS OF A SURVEY OF FORTUITOUS SPECIMENS AND SOIL SAMPLES AT ROCKY MOUNTAIN ARSENAL FOR ANALYSES OF TRACE ORGANIC CONTAMINANTS, ARSENIC, AND MERCURY

The CDPHE analyzed containerized waste from Basin F and various biota from RMA for trace organic compounds, arsenic, and mercury (EcoLogic 1996). The PCDD/Fs found in the Basin F waste and some of the biota samples led to the current Tier 1 Field Study. For ease of comparison, only the chemicals analyzed in the current Biological Advisory Subcommittee (BAS) study will be presented from the state-sponsored EcoLogic (1996) study. Given the screening objective of the study, the independent contract laboratory was not required to meet the data quality objectives and quality assurance procedures mandated for data collected in other Rocky Mountain Arsenal (RMA) studies.

Basin F Waste Samples

The waste samples collected from Basin F were containerized in 55-gallon drums and originally used by the state to estimate emissions that may occur during remediation of the Basin F waste pile (Schmidt and Winegar 1995; included as Appendix C in EcoLogic 1996). At the end of the air-emission study, left-over waste samples from each drum were stored in state freezers.

Basin F was an asphalt-lined disposal basin that received liquid waste from 1956 through about 1986. In an attempt to minimize seepage of liquid wastes into the shallow groundwater-flow system, liquid wastes from most of RMA were consolidated into Basin F, the first lined basin at RMA. In 1989, the liquids were temporarily transferred into Ponds A and B and a tank farm, located immediately north of Basin F. The liquids were then ultimately destroyed in the submerged quench incinerator. Through evaporation of the liquids in the uncovered Basin F, chemicals precipitated on top of the asphalt liner and created sludge with soils that found their way into the basin via surface run off. The sludge, asphalt liner, and underlying soils visually stained by liquids that leaked through the liner were all transferred into the Basin F waste pile. During this transfer of the wastes from Basin F to the waste pile, samples of waste from each horizon were containerized in separate drums.

Three drums of containerized waste were analyzed. They were specifically targeted because each represented a unique horizon from Basin F (**Table A-1**). Two samples were collected and analyzed from the drum containing material below the liner.

Table A-1. Samples analyzed from the Basin F waste-pile material

Drum Number	Serial Number	Reported Origin
24074	F 913727	Waste Pile
41154	F 913728	Material Below Liner
41154	F 913732	Material Below Liner
99312	F 913527	“Sludge” Above Liner

Except for the sample from drum number 24074, the analyses from the remaining samples are characterized by relatively high non-detects. Only 1,2,3,4,6,7,8-H_pCDD (680 ppt in drum 99312), OCDD (8,400 ppt in Drum 99312 and 790 and 540 ppt in drum 41154, respectively) and

OCDF (1,400 ppt in Drum 99312) were above the detection limits. PCDD/F analyses from Basin F are shown in **Table A-2**.

Table A-2. PCDD/F analyses of Basin F waste-pile material

		Drum No. 24074	Serial No. F 913727	Drum No. 41154	Serial No. F 913728	Drum No. 41154	Serial No. F 913732	Drum No. 99312	Serial No. F 913527
Congener	**WHO TEF**	Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}
2,3,7,8-TCDD	1.0	< 12	6	< 75	37.5	< 96	48	< 98	49
1,2,3,7,8-P_eCDD	1.0	14	14	< 140	70	< 140	70	< 200	100
1,2,3,4,7,8-H_xCDD	0.05	< 26	0.65	< 220	5.5	< 250	6.25	< 260	6.5
1,2,3,6,7,8-H_xCDD	0.01	110	1.1	< 160	0.8	< 180	0.9	< 190	0.95
1,2,3,7,8,9-H_xCDD	0.1	58	5.8	< 220	11	< 250	12.5	< 260	13
1,2,3,4,6,7,8-H_pCDD	0.001	770	0.77	< 180	0.09	< 260	0.13	680	0.68
OCDD		7,700		790		540		8,400	
2,3,7,8-TCDF	1.0	22	22	< 86	43	< 82	41	< 130	65
1,2,3,7,8-P_eCDF	0.1	16	1.6	< 140	7	< 140	7	< 250	12.5
2,3,4,7,8-P_eCDF	1.0	12	12	< 150	75	< 150	75	< 260	130
1,2,3,4,7,8-H_xCDF	0.1	54	5.4	< 140	7	< 170	8.5	< 180	9
1,2,3,6,7,8-H_xCDF	0.1	20	2	< 110	5.5	< 130	6.5	< 140	7
1,2,3,7,8,9-H_xCDF	0.1	24	2.4	< 160	8	< 200	10	< 210	10.5
2,3,4,6,7,8-H_xCDF	0.1	< 15	0.75	< 190	9.5	< 240	12	< 260	13
1,2,3,4,6,7,8-H_pCDF	0.01	290	2.9	< 130	0.65	< 140	0.7	< 330	1.65
1,2,3,4,7,8,9-H_pCDF	0.01	62	0.62	< 180	0.9	< 200	1	< 260	1.3
OCDF	0.0001	1,000	0.1	< 260	0.013	< 260	0.013	1,400	0.14
Total TEQ_{full}			**78.09**		**281.453**		**299.493**		**420.22**
Total TEQ_{quant}[a]			**70.7**		**0.0**		**0.0**		**0.8**

[a] Because the method detection limits were not reported for congeners with detections, method quantitation limits could not be calculated. Therefore, TEQ_{quant} was calculated by setting any result with a " < " designation to zero and includes the full value for any detected congener.

None of the four *coplanar* PCBs analyzed in the Tier 1 Field Study (PCB-77, -81, -126, and -169) were analyzed by EcoLogic (1996). Three of the eight *mono-ortho* PCBs were analyzed. PCB-105, -118, and -189 were each found to be below 1 μg/g (ppm) in all three drums. These data are of limited usefulness because of the high detection limits. Detection limits for the current study are in ppt.

Biota Samples

The biological samples from the CDPHE study were found dead on RMA from 1989 through the end of 1991 and collected by various U.S. Army and U.S. Fish & Wildlife Service personnel (**Table A-3**). They were tagged and stored frozen on site until June 6, 1995, when they were transferred to State of Colorado freezers to make room for additional USFWS samples.

Table A-3. Summary of biota samples obtained by the State of Colorado

Species	Date Collected	Comments with the Specimens
Great Horned Owl	10/15/90	Near orange and white tank at South Plants, electrocution
Great Horned Owl and Mouse	07/15/91	NW corner visitor center, electrocution
Great Horned Owl	03/22/91	Hydrazine Plant, #322, electrocution
Red-Tailed Hawk w/ 13-Lined Ground Squirrel	10/01/90	Electrocution on power pole near Basin F tanks
Canada Goose	06/18/90	Bldg. 111 front lawn, killed by coyote
Cottontail	05/03/90	Road kill on 8th Ave. by Basin A
13-Lined Ground Squirrel	?	900518, Basin F sludge pile, live trapped and euthanized
Muskrat	03/22/91	Lake Ladora dam, drowned in trap net
Deer Mice (3)	08/09/91	Basin F waste pile, cervical dislocation,
Blue-Winged Teal	04/25/89	Male, found near A Pond, Basin F, had flown into fence. Cause of death: euthanasia cervical dislocation
Ring-Necked Pheasant	4/25/89	Female, found west side of Tank 1, Basin F, possible death caused by flying into tank
Ring-Necked Pheasant	04/20/90	Female, off road in front of Bldg. 111, possible road kill (rigor mortis)
Kingbird	07/30/90	7th Ave. between Bldg. 111 and fire station, cause of death, road kill, broken neck
Ring-Necked Pheasant	05/09/90	Cause of death, flew into Basin F Tank #3
Cave Myotis or Big Brown Bat	04/13/90	Sec. 26 Basin F waste pile
House Finch	09/24/91	No information

From the biota samples collected, samples from five species were analyzed: three great horned owls, a red-tailed hawk, a 13-lined ground squirrel, three deer mice, and a big brown bat or cave myotis. Each owl and the red-tailed hawk were analyzed by tissue, including the liver, brain, skeletal muscles, and adipose (when available). The other species were homogenized for individual whole-body analyses. The three deer mice were homogenized into one sample. In general, the PCDD/Fs found in the great horned owls led to their inclusion in the current study.

For the owls and red-tailed hawk, the relative concentrations of PCDD/Fs between tissue samples is distributed in the following order:

Adipose > Liver > Skeletal > Brain,

when all tissues were available for analysis. The owl collected on 10/15/90 was emaciated. Three of the owls in the current study were also emaciated which led, in part, to the focus on owl livers. **Table A-4** presents the PCDD/Fs and *coplanar* PCBs for the three owls and the red-tailed hawk from the EcoLogic (1996) report. The emaciated owl has the greatest TEQs compared to the non-emaciated owls. This is consistent with the trend found in the owls of the current study. Dividing the total TEQ of the emaciated owl liver by the 8-fold factor applied to the owls of the current study yields an adjusted total TEQ of 86.1 ppt. Based on a reproductive-success endpoint, the toxicity benchmarks for adult-owl livers range from 14 ppt ($MATC_{NOAEL}$) to 230 ppt ($MATC_{LOAEL}$) (BAS 2000, Appendix E). Thus, it is possible that PCDD/Fs were sufficiently elevated to have an effect on this owl and the other two owls. The *mono-ortho* PCBs add a negligible fraction to the total TEQs for all species analyzed (**Tables A-4 and A-5**).

Moreover, the congener patterns of PCDD/Fs appear to be consistent between the Basin F material and the biota analyses. In general, *penta*-dioxin, and *penta*- and *hepta*-furans are the predominant congers that contribute to the total TEQ concentrations.

Table A-4. Liver PCDD/F and *mono-ortho* PCB concentrations in great horned owls and a red-tailed hawk

		Great Horned Owls						***Red Tail Hawk***	
		7/15/91		**3/22/91**		**10/15/1990***		**10/1/91**	
Congener	**WHO TEF**	Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}
2,3,7,8-TCDD	1.0	0.9	0.9	0.93	0.93	1.3	1.3	0	0
1,2,3,7,8-P_eCDD	1.0	5	5	9.8	9.8	16	16	3.2	3.2
1,2,3,4,7,8-H_xCDD	0.05	3.5	0.175	14	0.7	36	1.8	8.5	0.425
1,2,3,6,7,8-H_xCDD	0.01	12	0.12	81	0.81	100	1	17	0.17
1,2,3,7,8,9-H_xCDD	0.1	0.95	0.095	2.7	0.27	15	1.5	5.5	0.55
1,2,3,4,6,7,8-H_pCDD	0.001	14	0.014	38	0.038	270	0.27	310	0.31
OCDD		17	0	52	0	140	0	560	0
2,3,7,8-TCDF	1.0	1.8	1.8	0	0	2	2	0	0
1,2,3,7,8-P_eCDF	0.1	1.1	0.11	6.5	0.65	78	7.8	0	0
2,3,4,7,8-P_eCDF	1.0	11	11	41	41	260	260	0	0
1,2,3,4,7,8-H_xCDF	0.1	36	3.6	370	37	2500	250	5.6	0.56
1,2,3,6,7,8-H_xCDF	0.1	18	1.8	150	15	1,200	120	4	0.4
2,3,4,6,7,8-H_xCDF	0.1	3.9	0.39	15	1.5	74	7.4	5.1	0.51
1,2,3,7,8,9-H_xCDF	0.1	6.3	0.63	0	0	47	4.7	0	0
1,2,3,4,6,7,8-H_pCDF	0.01	7.3	0.073	69	0.69	990	9.9	98	0.98
1,2,3,4,7,8,9-H_pCDF	0.01	3	0.03	100	1	500	5	4.9	0.049
OCDF	0.0001	5.6	0.00056	170	0.017	0	0	17	0.0017
Total TEQ (PCDD/PCDFs)			**25.74**		**109.41**		**688.67**		**7.16**
233'44'PeCB (105)	0.0001	< 8.0	0.0004	< 8.0	0.0004	< 9.0	0.00045	<8.0	0.0004
2'344'5PeCB (118)	0.0001	< 8.0	0.0004	< 8.0	0.0004	25	0.0025	<8.0	0.0004
233'44'55'HpCB (189)	0.0001	< 10.0	0.0005	< 10.0	0.0005	< 10.0	0.0005	<10.0	0.0005
Total TEQ (PCDD/PCDFs and PCBs)			**25.74**		**109.41**		**688.67**		**7.16**

***** emaciated

Table A-5. Whole-body PCDD/F and *mono-ortho* PCB concentrations for a 13-lined ground squirrel, three mice, and a bat

		13-Lined Ground Squirrel		Three Deer Mice		Big Brown Bat	
	WHO TEF	5/18/90		8/9/91		9/13/90	
		Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}	Conc. (ppt)	TEQ_{full}
Congener							
2,3,7,8-TCDD	1.0	< 0.61	0.305	< 0.57	0.285	1.4	1.4
1,2,3,7,8-P_eCDD	1.0	1.1	1.1	1.5	1.5	5.1	5.1
1,2,3,4,7,8-H_xCDD	0.05	2.1	0.105	1.3	0.065	3.6	0.18
1,2,3,6,7,8-H_xCDD	0.01	15	0.15	1.2	0.012	9.1	0.091
1,2,3,7,8,9-H_xCDD	0.1	< 0.97	0.0485	2.4	0.24	2.2	0.22
1,2,3,4,6,7,8-H_pCDD	0.001	2.3	0.0023	5.9	0.0059	41	0.041
O_8CDD		4.7	0	38	0	66	0
2,3,7,8-TCDF	1.0	< 0.55	0.275	< 0.55	0.275	< 1	0.5
1,2,3,7,8-P_eCDF	0.1	< 1.5	0.075	< 0.64	0.032	< 1	0.05
2,3,4,7,8-P_eCDF	1.0	< 1.5	0.75	< 0.63	0.315	2.2	2.2
1,2,3,4,7,8-H_xCDF	0.1	< 0.56	0.028	0.78	0.078	3.6	0.36
1,2,3,6,7,8-H_xCDF	0.1	0.53	0.053	1	0.1	2.6	0.26
2,3,4,6,7,8-H_xCDF	0.1	< 0.65	0.0325	1.3	0.13	< 3.3	0.165
1,2,3,7,8,9-H_xCDF	0.1	< 0.68	0.034	1.2	0.12	< 1.1	0.055
1,2,3,4,6,7,8-H_pCDF	0.01	< 1.2	0.006	2.6	0.026	4.5	0.045
1,2,3,4,7,8,9-H_pCDF	0.01	< 1.4	0.007	3.1	0.031	< 2.4	0.012
OCDF	0.0001	< 1.3	0.000065	32	0.0032	4.2	0.00042
Total TEQ (PCDD/PCDFs)			**2.97**		**3.22**		**10.68**
233'44'PeCB (105)	0.0001	< 8.0	0.0004	< 8.0	0.0004	< 10.0	0.0005
2'344'5PeCB (118)	0.0001	< 8.0	0.0004	< 8.0	0.0004	35	0.0035
233'44'55'HpCB (189)	0.0001	< 10.0	0.0005	< 10.0	0.0005	< 10.0	0.0005
Total TEQ (PCDD/PCDFs and PCBS)			**2.97**		**3.22**		**10.68**

Appendix B

Synopsis of Decision Procedure

The following is a brief synopsis of the Decision Procedure used to evaluate the data from the Dioxin/Furan Tier I Field Study. The complete Decision Procedure is an attachment to the sampling and analysis plan (SAP, Appendix C). The Decision Procedure was used to evaluate the chemical residue and H4IIE-luc bioassay data on polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) in samples of wildlife tissues to answer the following question:

Are concentrations of PCDD/Fs in representative biota samples collected at RMA greater than those in comparable samples from off-post reference sites?

The first step of the Decision Procedure is to assess the acceptability of the data for statistical analyses. Quality assurance and quality control processes are outlined in the SAP and the laboratory quality control program for the each laboratory. The Decision Procedure indicates that U.S. Army and U.S. Environmental Protection Agency (EPA) personnel audit the laboratories and that a Biological Advisory Subcommittee (BAS) workgroup review the data for general data quality and usability.

The Decision Procedure specifies how concentrations of PCDD/Fs in biota at Rocky Mountain Arsenal (RMA) were statistically compared to those in the same species at off-post reference sites. Three different statistical comparisons of PCDD/F concentrations were made between groups of biota from RMA and off-post reference locations. The first two comparisons examine differences between Toxicity Equivalents (TEQs) and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)-EQs in biota from RMA and off-post reference sites, and the third comparison evaluates congener patterns.

In the TEQ method, concentrations of each Ah-R active PCDD and PCDF congener (7 dioxins and 10 furans) present in extracts of each sample are quantified by gas chromatography with high resolution mass spectrometry (HR-GC/MS). The concentration of each congener is then multiplied by a toxic equivalency factor (TEF), which is a fraction that represents the relative potency of a congener as compared to 2,3,7,8-TCDD. The equivalent concentration of 2,3,7,8-TCDD of each congener equals the product of the congener's concentration and its species' TEF. The products are summed over all congeners, and the sum for the sample mixture is denoted as the TEQ concentration. Advantages of the TEQ method are the ability to potentially identify and quantitate each of the 17 Ah-R active PCDD/F congeners in samples, whereby results can be used to examine patterns of contamination and relative contributions of congeners to the TEQ. Disadvantages include quantitative uncertainties due to non-detectable congeners at trace concentrations or when chemical interferences occur. Rarely are all 17 PCDD/F congeners present in samples above method detection limits (MDLs). This problem with inaccuracy and imprecision at trace levels is compounded by quantitative uncertainties in TEFs.

In the bioassay method, extracts from each sample are tested for their ability to induce luciferase activity. Induction of luciferase is closely parallel to biological effects of 2,3,7,8-TCDD, such as the initiation of cellular responses and toxicity (Sanderson et al. 1996). Dose-response curves for the tested extract and for 2,3,7,8-TCDD standards are compared to yield a measure of their relative activity. The result is expressed as the equivalent quantity of 2,3,7,8-TCDD that would have the same enzyme inducing potency as the mixture of PCDD/Fs found in the sample

(Sanderson et al. 1996). Advantages of this method are that the actual biological activity in a sample can be measured in culture and thus estimated *in vivo*. This may partially account for any interactions that would not be apparent in TEQs. Also, there is biological relevance via the Ah-R binding mechanism that can lead to toxicity. This bioassay has the disadvantage that the result can be influenced by chemicals other than PCDD/Fs, and responses cannot always be attributed entirely to PCDD/Fs.

The TEQ and TCDD-EQ yield complementary information, but do not measure exactly the same thing. Rather, they are both estimates of the toxic potency of the mixture of PCDDs and PCDFs in the sample. Both methods were used because of their mutual advantages for increased scientific information.

Although both TEQs and TCDD-EQs provide useful and relevant aggregate measures of the total quantity of PCDDs and PCDFs in the samples, neither utilizes all the information provided by the suite of measurements of congener concentrations. Accordingly, a third method of statistical analysis was used to investigate patterns of relative congener concentrations. This analysis will help identify which congeners are possibly present at elevated concentrations in RMA biota, and may suggest the spatial pattern of contamination at RMA.

To answer the general question posed for the Tier 1 Field Study, greater weight was placed on calculated TEQs, as these measurements represent definitive chemical analyses and are linked to a wider range of environmental and effects data, and because the bioassay does not specifically measure dioxins and furans. There is also a greater regulatory history and acceptance of TEQs for risk assessment than for TCDD-EQ.

The specific statistical tests and area comparisons conducted were dependent upon the species and the character of the data derived from the chemical and bioassay analyses. If the data from samples in RMA and off-post reference groups met the requirements for parametric tests, such as normality of the data distribution and homogeneity of variance, concentrations were compared using standard parametric statistical tests. If data did not meet requirements for parametric statistical tests, their non-parametric equivalents were applied.

Analyses of the patterns of relative concentrations (frequency and magnitude) of congeners included multivariate statistics, such as Principal Components Analysis (PCA) or profile analysis.

The three approaches for statistical comparisons of the data that are outlined above will provide answers to specific Tier 1 Field Study questions that can be formulated as null and alternative hypotheses. The criteria for acceptance or rejection of these testable hypotheses specify a significance of probabilities for Type I error (α) to be less than (<) 0.05 (providing confidence as [1-α] greater than [>] 95 percent) and probability for Type II error (β) to be < 0.20 (producing power as [1-β] > 80 percent).

Because β depends on four main factors (specified α, available sample size, sample variance, and the selected relative effects distance), a relative effects distance has been selected as the greater of either 15 parts per trillion (ppt) TEQ or 50 percent TEQ above the mean concentration found in comparable off-post reference samples. The reason for the lower limit of 15 ppt TEQ

for relative differences between group sample means is that differences less than 15 ppt are meaningless in terms of both biological response and analytical accuracy and precision. Unless noted otherwise in the hypotheses stated throughout this document, the above statistical criteria were applied. However, strict adherence to these requirements did not preclude sound professional observations about the data, such as trends or tendencies with slightly lower levels of statistical significance (ρ less than or equal to 0.1).

Hypotheses (H) Stated to Compare Calculated TEQs

$H1_o$: Mean concentrations of TEQs, based on 2,3,7,8- substituted CDD/Fs, are **not greater** in samples from the RMA on-post (O) population when compared to samples in the same species from an off-post reference (R) population. [H_o: $\mu_o = \mu_r$]

$H1_a$: Mean concentrations of TEQs, based on 2,3,7,8- substituted PCDD/Fs, are **greater** in samples from the RMA on-post (O) population when compared to samples in the same species from an off-post reference (R) population. [H_a: $\mu_o > \mu_r$]

Note: Null hypotheses will be tested separately for American kestrel eggs, great horned owl livers, and carp eggs. Testing of subgroups of kestrel eggs from different locations will be performed according to Hypothesis 2 below.

$H2_o$: Mean concentrations of TEQs, based on 2,3,7,8-substituted PCDD/Fs, are **not greater** in samples from the core (C) and the periphery (P) populations and from off-post reference (R) population. [H_o: $\mu_c = \mu_p = \mu_r$]

$H2_a$: Mean concentrations of TEQs, based on 2,3,7,8- substituted CDD/Fs, are **greater** in samples from either the core (C) or the periphery (P) population compared to the off-post reference (R) population; or are greater in the core (C) population when compared to the periphery (P) population. [H_a: $\mu_c > \mu_r$ or $\mu_p > \mu_r$ or $\mu_c > \mu_p$]

Note: This hypothesis will be tested separately only for American kestrel eggs. The core population area (C) can possibly be defined in the following three ways: (i) conventionally per the USFWS Biomonitoring Plan consisting of birds that potentially nest or feed in RMA Sections 1, 2, 25, 26, 35 and 36 (12 nest box locations designated NW02, NW06, NW07, NW11, NW12, NW25, NW26, NW30t, NW31, SE35, NE35, and NW35); or (ii) selected according to historic findings of elevated levels of dieldrin in kestrel eggs (9 nest box locations designated NW02, NW06, NW25, NW26, NW27, NW31, SE35, NE35, and NW35); or (iii) if dieldrin is analyzed on the same samples as dioxins, the nest box locations that have elevated dieldrin levels ($\geq$ 0.05 parts per million [ppm] in kestrel eggs) will define the core population area.

Hypotheses for Comparing Bioassay TCDD-EQS

$H3_o$: Mean concentrations of TCDD-EQs are **not greater** in samples from the RMA on-post (O) population when compared with samples in the same species from an off-post reference (R) population. [H_o: $\mu_o = \mu_r$]

$H3_a$: Mean concentrations of TCDD-EQs are **greater** in samples from the RMA on-post (O) population when compared with samples in the same species from an off-post reference (R) population. [H_a: $\mu_o > \mu_r$]

Note: This hypothesis will be tested separately for American kestrel eggs, great horned owl livers and carp eggs. Testing of subgroups of kestrel eggs from different locations will be done according to Hypothesis 4 below.

$H4_o$: Mean concentrations of TCDD-EQs are **not greater** in samples from the core (C) and periphery (P) populations and from the off-post reference (R) population. [H_o: $\mu_c = \mu_p = \mu_r$]

$H4_a$: Mean concentrations of TCDD-EQs are **greater** in samples from either the core (C) or periphery (P) population when compared to the off-post reference (R) population; or are greater in the core (C) population when compared with the periphery (P) population.
[H_a: $\mu_c > \mu_r$ or $\mu_p > \mu_r$ or $\mu_c > \mu_p$]

Note: This hypothesis will be tested only for American kestrel eggs. The core population area (C) can possibly be defined in three ways: (i) conventionally per the USFWS Biomonitoring Plan consisting of birds that potentially nest or feed in RMA Sections 1, 2, 25, 26, 35 and 36 (12 nest box locations designated NW02, NW06, NW07, NW11, NW12, NW25, NW26, NW30t, NW31, SE35, NE35, and NW35); or (ii) selected according to historic findings of elevated levels of dieldrin in kestrel eggs (9 nest box locations designated NW02, NW06, NW25, NW26, NW27, NW31, SE35, NE35, and NW35); or (iii) if dieldrin is analyzed concurrently with dioxins, the nest box locations that have elevated dieldrin levels (≥ 0.05 ppm in American kestrel eggs) will define the core population area.

Hypothesis for Comparing Congener Patterns

$H5_o$: Patterns of relative concentrations (ratios of congeners) of PCDD/Fs are **not different** in samples from the RMA on-post (O) population compared to patterns in samples in the same species from an off-post reference (R) population. [H_o: $\mu_o = \mu_r$]

$H5_a$: Patterns of relative concentrations (ratios of congeners) of PCDD/Fs are **different** in samples from the RMA on-post (O) population compared to patterns in samples in the same species from an off-post reference (R) population. [H_o: $\mu_o \neq \mu_r$]

Note: This hypothesis will be tested separately for American kestrel eggs, great horned owl livers, and carp eggs.

Individual decision flowcharts were developed for TEQ, TCDD-EQ, and pattern analysis for each species. Once a decision for each type of analysis for each species was reached, an over-all decision matrix and flowchart were followed to answer the overall question as stated above (**Tables B-1** through **B-4** and **Figure B-1**).

Table B-1. Decision matrix for American kestrel eggs and great horned owl livers to support the evaluation of PCDD/Fs as COCs[1] at the RMA

Step V in column 5 below addresses the general question to be answered by the Biological Assessment Subcommittee (BAS) for this Tier I Field Study, stated as: ***Are concentrations[2] of PCDD/Fs in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Step I: Data Usability	Step II: TEQ ($H1_o$ or $H2_o$)	Step III: TCDD-EQ ($H3_o$ or $H4_o$)	Step IV: Pattern Analyses ($H5_o$)	Step V: BAS's Answer for Overall Decision[3, 4]	Examples of the BAS's considerations for professional interpretation of the Overall Decision
Evaluated	Reject H_o	Reject H_o	Reject H_o	YES	Probable COC at RMA.
Evaluated			Accept H_o	YES or Inconclusive	Perform mass-balance[5] with REPs (relative effect potencies).
Evaluated	Reject H_o	Inconclusive	Reject H_o	YES	Probable COC at RMA.
Evaluated			Accept H_o	YES or Inconclusive	Perform mass-balance[5] with REPs.
Evaluated	Reject H_o	Accept H_o	Reject H_o	YES	Possible[6] COC at RMA.
Evaluated			Accept H_o	YES or Inconclusive	Perform mass-balance[5] with REPs.
Evaluated	Accept H_o	Reject H_o	NA	Recalculate TEQs including PCBs	After recalculating the TEQs including PCBs, repeat the statistical analysis, and use the sub-matrix below.
Evaluated	Inconclusive	Reject H_o	NA	Recalculate TEQs including PCBs	After recalculating the TEQs including PCBs, repeat the statistical analysis, and use the sub-matrix below.
Evaluated	Inconclusive	Inconclusive	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Uncertain toxicity equivalent factors (TEFs) and trace analysis may be cause for TEQ.
Evaluated	Inconclusive	Accept H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Uncertain TEFs and trace analysis may be cause for TEQ.
Evaluated	Accept H_o	Inconclusive	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Possible non-PCDD/Fs causing slightly higher bioactivity.
Evaluated	Accept H_o	Accept H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Probably not a COC at RMA.

Table B-2. Decision Sub-matrix for American kestrel eggs and great horned owl livers to evaluate PCB contributions at the RMA for outcomes when the null hypothesis is rejected for Step III TCDD-EQ but accepted or inconclusive for Step II TEQ

Step V in column 5 addresses the general question for this Tier I Field Study: ***Are concentrations[2] of PCDD/F in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Recalculate the TEQ including PCBs for Step II, and then use the following matrix for decision for the overall outcome.

Step I: Data Usability	Step II: TEQ ($H1_o$ or $H2_o$)	Step III: TCDD-EQ ($H3_o$ or $H4_o$)	Step IV: Pattern Analysis ($H5_o$)	Step V: Overall Decision[3,4]	Examples of considerations for interpretation of Overall Decision
Evaluated	Reject H_o	Reject H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source; however, PCB congeners account of majority of differences.
Evaluated			Accept H_o	NO	This outcome may indicate that PCB congeners are significantly greater for RMA samples than off-post reference samples. The BAS will consider the implications.
Evaluated	Accept H_o	Reject H_o	Reject H_o	Inconclusive	May indicate a small local PCDD/F source.
Evaluated			Accept H_o	NO	Possible other agonist causing bioactivity.

Notes: (for Tables A and B):

1. COC (contaminant of concern) is an EPA term for a chemical that has both a source and a potential for release from a site, as per EPA Guidance (EPA 1989) that is based on Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and National Contingency Plan (NCP) regulations. The BAS agreed to use a stepwise scientific approach that evaluates the weight and strength of the major "lines of scientific evidence" from tiered biological studies at the RMA, which provide site-specific information to evaluate whether PCDD/Fs may be COCs. Using this stepwise approach to reach the overall decision in Step V above, Step I (not shown) was performed first to ensure the adequacy of data for further valid biostatistical evaluations, and then the BAS considered the anticipated combinations of possible results as shown in Steps II through IV. The possible outcomes in the matrix are sorted in descending order with the strongest evidence for existence of COCs at the top and the strongest evidence for absence of COCs at the bottom, with more weight being given to the results from the TEQ analyses in Step II.
2. Concentration, as used in this context, means "toxic-equivalents" of 2,3,7,8-TCDD that are generated by the 17 PCDD/F congeners with Ah-R agonist activity. It is important to note that only Step II (TEQ) provides results from a direct measure of PCDD/F concentrations, although those measurements can become less certain near the analytical detection limits due to measurement errors and due to uncertainties in TEFs; additionally, Step III (TCDD-EQ) can provide an indirect measure of PCDD/F concentrations, provided that the bioassay results are not overshadowed by other chemicals with Ah-R activity.
3. An "inconclusive" decision indicates that the general question posed cannot be answered as "yes" or "no" with sufficient scientific confidence. An inconclusive outcome will result in further ecotoxicological analysis of the problem by the BAS.
4. The BAS recognizes that bioassay derived TCDD-EQ concentrations might not reflect analytically derived TEQ concentrations because biota extracts may contain substantial amounts of other types of Ah-R agonists or antagonists (e.g., PCBs, polycyclic aromatic hydrocarbons, polychlorinated naphthalenes, etc.). If such other Ah-R agonists or antagonists are present in samples at sufficiently high concentrations, they will likely influence the TCDD-EQ concentrations while not being totally accounted for in the chemical residue analyses. Therefore, while TCDD-EQ results by themselves cannot answer the

general question posed in the Tier 1 Field Study, TCDD-EQs can be used in a weight-of-evidence approach to help guide (a) the interpretation of toxicological significance (especially if PCDD/Fs have the predominance of Ah-R activity), and (b) possible future studies at the RMA. The BAS generally recognizes that TCDD-EQs, if not overshadowed by other Ah-R activity, can potentially show differences (similar to TEQs) in PCDD/F concentrations on- and off-post.

5. This overall answer depends on the results of the pattern analyses: (a) if the Principal Components Analysis (PCA) visual patterns and/or cluster analyses and profile analyses of relative concentrations of PCDD/F congeners are the same, but the masses of PCDD/Fs are substantially greater on-post than in off-post samples, then the outcome is "yes," or (b) if the masses are similar in this event, then the outcome is "inconclusive."

6. The suggested interpretation of the outcome for this scenario is downgraded to "possible COC" from "probable COC," because this situation is anticipated to occur from a small difference between groups with relatively low TEQs that may be barely significant ($p < 0.05$); therefore, there would likely be greater uncertainty in this outcome, since the results may be driven by error in trace-level detection limit concentrations coupled with uncertain TEFs.

Table B-3. Decision Matrix for Combined Results for Terrestrial Species to Support the Evaluation of PCDD/Fs as COCs at the RMA

Column 4 addresses the general question for this Tier 1 Field Study: ***Are concentrations of PCDD/F in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Text Reference[1]	American Kestrel Decision	Great Horned Owl Decision	Overall Terrestrial Species Decision
V.B.1	YES	YES	YES
V.B.1	YES	NO	YES
V.B.1	YES	Inconclusive	YES
V.B.1	Inconclusive	YES	YES
V.B.1	NO	YES	YES
V.B.2	NO	Inconclusive	Inconclusive
V.B.2	Inconclusive	NO	Inconclusive
V.B.2	Inconclusive	Inconclusive	Inconclusive
V.B.3	NO	NO	NO

[1] Text references are from BAS (2000). *Rocky Mountain Arsenal Dioxin/Furan Tier I Field Study Sampling and Analysis Plan*.

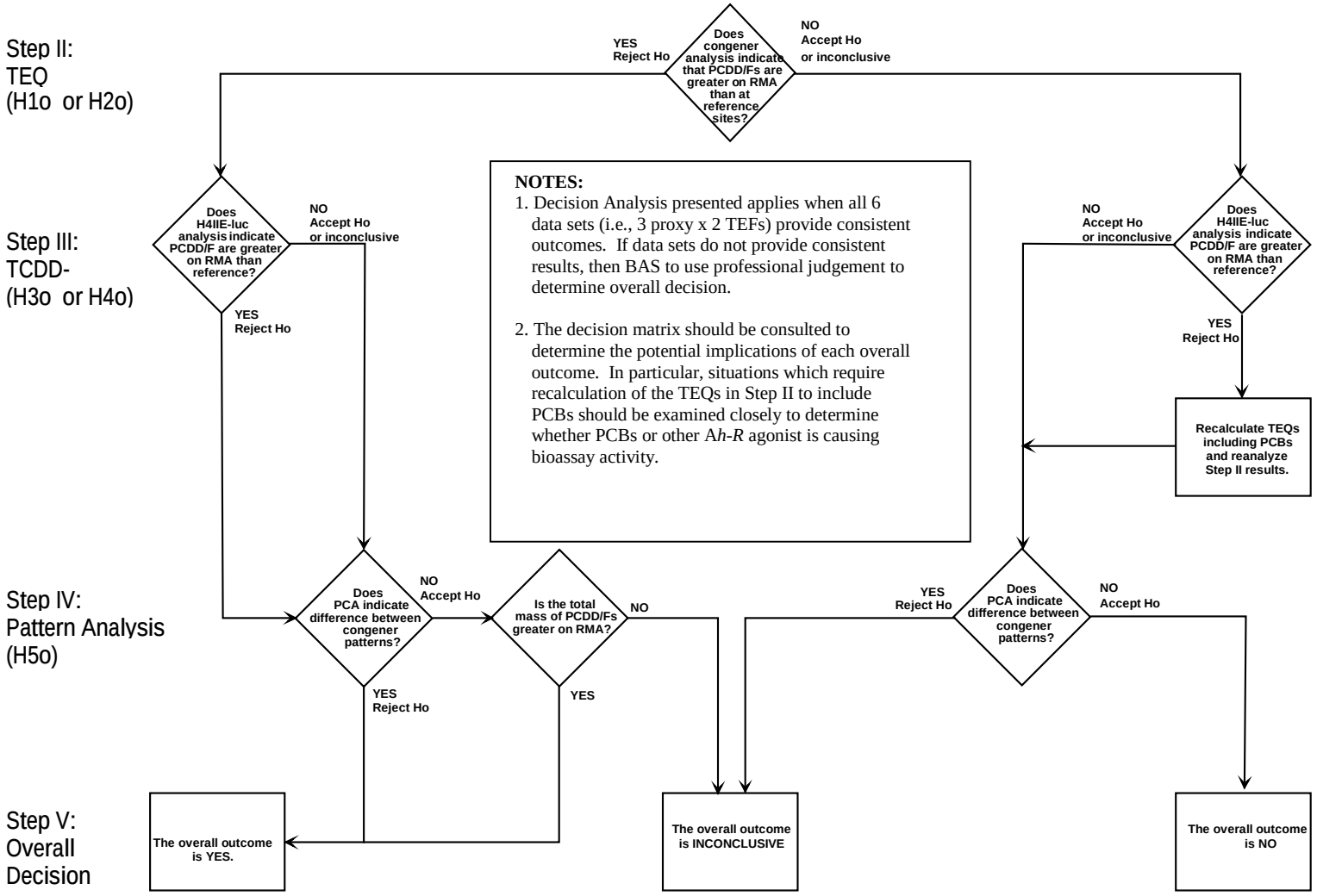
Table B-4. Decision Matrix for Carp Eggs to Support the Evaluation of PCDD/Fs as COCs at the RMA

Column 5 addresses the general question for this Tier 1 Field Study: ***Are concentrations of PCDD/F in biota samples from the RMA greater than those in the same species collected from the selected off-post reference locations?***

Step I: Data Usability	**Step II: TEQ ($H1_o$)**	**Step III: TCDD-EQ ($H3_o$)**	**Step IV: Pattern Analysis ($H5_o$)**	**Overall Outcome**
Evaluated	Reject $H1_o$	Reject $H3_o$	Use to determine principal components	YES
Evaluated	Reject $H1_o$	Inconclusive	Reject $H5_o$	YES
Evaluated	Inconclusive	Reject $H3_o$	Reject $H5_o$	YES
Evaluated	Reject $H1_o$	Inconclusive	Accept $H5_o$	Inconclusive
Evaluated	Inconclusive	Reject $H3_o$	Accept $H5_o$	Inconclusive
Evaluated	Inconclusive	Inconclusive		Inconclusive

Figure B-1. Flowchart of Overall Decision Procedure for American Kestrel Eggs and Great Horned Owl Livers to Support the Evaluation of PCDD/Fs as COCs at RMA

Are concentrations of PCDD/F in biota samples from RMA greater than those in the same species collected from the selected off-post reference locations?



Appendix C

Congener-Specific Chemical Analysis Results (TEQs) for Tissue Samples

Appendix C1

Flag Codes and Definitions for PCDD/F Analyses

Table C1-1. Definition, Application, and Uses of Flagged Data for Risk Assessment of Dioxins

(EPA R8 Soil and RMA Tissue Studies of Dioxins, 2000, ref. RMA/EAL SOP 803)

Validation Flags	Meaning of Flags for Dioxin Soil Analyses by MRI Laboratory	Usability* of Reported Data Values	
		Full data set used (*semi-quantitative*)	**Quantitative** data set (> MQL used)
E	**E**stimated Maximum Potential Concentration; the relative ion abundance ratios did not meet the acceptance limits.	Use value	Use 1/2 value
D	EMPC is caused by polychlorinated **D**iphenyl ether interference.	Use 1/2 value	Don't use
B	Analyte was detected in associated Method **B**lank, sample concentration < 5x MB concentration.	Use value	Use 1/2 value
C	Concentration is above upper **C**alibration Standard; result is an estimate, flagged C by lab and J added by validator.	Use value	Use value
I	Recovery of 13C-labeled **I**sotopic analyte outside of criteria	Use value	Use value
J	Estimated: e.g., isotopic standard is outside CCAL range, native analyte recovery in LCS is outside criteria, etc.	Use value	Use 1/2 value
NJ	Presumptive evidence for the presence of an analyte with an estimated value; if used for 2,3,7,8-TCDF, see "U" below	Use 1/2 value	Don't use
S	Peak is **S**aturated; result, if calculated, is flagged by the validator as an estimate – "J."	Use value	Use value
U	**U**nconfirmed: column is not specific for 2,3,7,8-TCDF; confirmation not requested. Validator now uses "NJ" flag.	Use value	Use 1/2 value
R	**R**ejected: result is invalid and not usable.	Use 1/2 EDL	Don't use
MRI Laboratory reported "LT" values < MQL (MQL = 10 x Signal:Noise Ratio)			
LT *applied **first** to data, then apply flags!*	"LT" is not a true "flag," but if a LT result is a "detect" **above the MDL** (MDL = 2.5 x Signal:Noise = lab EDL), then	Use value	Don't use
	"LT" is not a true "flag", but if a LT result is a "non-detect" **below the MDL** (MDL = 2.5 x Signal:Noise = lab EDL), then	Use 1/2 EDL	Don't use

* Per the 1992 EPA Data Usability for Risk Assessment in Superfund guidance, the above flags are used to produce two data sets: 1) a semi-quantitative set of results with an **actual or proxy value for each of the 29 measured congeners**; and 2) a fully quantitative set of results with more certain identification and more accurate quantities of congeners that have **no disqualifying flags (D, JN, R or LT) or use limited proxies (E, B, J or U)**. This distinction is made to better understand and limit the impacts of less certain estimated values on TEQs, via a sensitivity analysis by comparing TEQs from the two data sets, and to evaluate congener profiles with just the analytes that are able to be adequately quantified.

Note: The term "value" in this table refers to the "found" concentration reported by the MRI laboratory in the electronic spreadsheets of data.

Appendix C2

American Kestrel Eggs

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG04BL
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Barr Lake

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.489	1.956	10.7		10.7	10.7	10.7	0.001	0.0	0.0	0.0	0.0%	0.0%	0.1%
1234678-HpCDF	0.610	2.438	4.19		4.2	4.2	4.2	0.01	0.0	0.0	0.0	0.1%	0.1%	0.2%
1234789-HpCDF	0.911	3.642	LT		0.5			0.01	0.0			0.0%		
123478-HxCDD	1.912	7.648	LT	EMPC	1			0.05	0.1			0.2%		
123478-HxCDF	0.213	0.853	1.07		1.1	1.1	1.1	0.1	0.1	0.1	0.1	0.4%	0.4%	0.5%
123678-HxCDD	3.668	14.672	LT	EMPC	1.8			0.01	0.0			0.1%		
123678-HxCDF	0.170	0.681	1.59		1.6	1.6	1.6	0.1	0.2	0.2	0.2	0.5%	0.6%	0.8%
123789-HxCDD	1.098	4.392	LT	EMPC	0.5			0.1	0.1			0.2%		
123789-HxCDF	0.202	0.809	1.17	B	1.2	1.2	0.6	0.1	0.1	0.1	0.1	0.4%	0.4%	0.3%
12378-PeCDD	0.119	0.474	2.6		2.6	2.6	2.6	1	2.6	2.6	2.6	8.9%	9.1%	12.6%
12378-PeCDF	0.720	2.880	LT	EMPC	0.4			0.1	0.0			0.1%		
234678-HxCDF	1.621	6.484	LT	EMPC	0.8			0.1	0.1			0.3%		
23478-PeCDF	0.112	0.446	1.71		1.7	1.7	1.7	1	1.7	1.7	1.7	5.8%	6.0%	8.3%
2378-TCDD	0.758	3.032	LT	EMPC	0.4			1	0.4			1.4%		
2378-TCDF	0.297	1.190	1.46	U	1.5	1.5	0.7	1	1.5	1.5	0.7	5.1%	5.3%	3.4%
OCDD	0.417	1.668	33.3		33.3	33.3	33.3	0	0	0	0	0%	0%	0%
OCDF	0.485	1.941	3.17	B	3.2	3.2	1.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189				NC, J				0.00001						
PCB 156	1.060	4.240	2850		2850	2850	2850	0.0001	0.3	0.3	0.3	1.0%	1.0%	1.4%
PCB 157	1.070	4.280	801.2		801.2	801.2	801.2	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.4%
PCB 105	0.765	3.060	2760		2760	2760	2760	0.0001	0.3	0.3	0.3	0.9%	1.0%	1.3%
PCB 167	1.000	4.000	2510		2510	2510	2510	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 114	0.744	2.976	136.2		136.2	136.2	136.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 118	0.831	3.324	8370		8370	8370	8370	0.00001	0.1	0.1	0.1	0.3%	0.3%	0.4%
PCB 123	0.886	3.544	223.6		223.6	223.6	223.6	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	7.162	28.648	10.5	J	10.5	10.5		0.001	0.0	0.0		0.0%	0.0%	
PCB 126	15.080	60.320	77.66	J	77.7	77.7	38.8	0.1	7.8	7.8	3.9	26.6%	27.3%	18.8%
PCB 77	4.291	17.164	211.3		211.3	211.3	211.3	0.05	10.6	10.6	10.6	36.2%	37.1%	51.3%
PCB 81	20.750	83.000	31.65	J	31.7	31.7		0.1	3.2	3.2		10.9%	11.1%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		6.9	6.2	5.4
All PCBs		22.3	22.3	15.2
All PCDDs/PCDFs/PCBs		29.2	28.5	20.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG03BL
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Barr Lake

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.482	1.928	2.55	B	2.6	2.6	1.3	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	0.431	1.724	LT		0.2			0.01	0.0			0.0%		
1234789-HpCDF	0.628	2.512	LT		0.3			0.01	0.0			0.0%		
123478-HxCDD	0.172	0.687	1.62	B	1.6	1.6	0.8	0.05	0.1	0.1	0.0	0.7%	0.7%	0.5%
123478-HxCDF	0.130	0.520	0.684	B	0.7	0.7	0.3	0.1	0.1	0.1	0.0	0.6%	0.6%	0.4%
123678-HxCDD	0.142	0.569	1.97		2	2	2	0.01	0.0	0.0	0.0	0.2%	0.2%	0.3%
123678-HxCDF	0.754	3.016	LT	EMPC	0.4			0.1	0.0			0.3%		
123789-HxCDD	0.468	1.872	LT	EMPC	0.2			0.1	0.0			0.2%		
123789-HxCDF	1.204	4.816	LT	EMPC	0.6			0.1	0.1			0.5%		
12378-PeCDD	0.125	0.500	3.01		3	3	3	1	3.0	3.0	3.0	24.8%	27.0%	38.0%
12378-PeCDF	0.243	0.972	LT		0.1			0.1	0.0			0.1%		
234678-HxCDF	0.801	3.204	LT	EMPC	0.4			0.1	0.0			0.3%		
23478-PeCDF	0.114	0.455	1.26		1.3	1.3	1.3	1	1.3	1.3	1.3	10.7%	11.7%	16.5%
2378-TCDD	0.688	2.750	0.87		0.9	0.9		1	0.9	0.9		7.4%	8.1%	
2378-TCDF	0.187	0.749	0.495	U	0.5	0.5		1	0.5	0.5		4.1%	4.5%	
OCDD	0.505	2.020	17.6	B	17.6	17.6	8.8	0	0	0	0	0%	0%	0%
OCDF	0.605	2.418	1.32	B	1.3	1.3		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189				NC, J				0.00001						
PCB 156	6.470	25.880	744		744	744	744	0.0001	0.1	0.1	0.1	0.6%	0.7%	0.9%
PCB 157	204.000	816.000	223		223	223		0.0001	0.0	0.0		0.2%	0.2%	
PCB 105	0.859	3.436	406		406	406	406	0.0001	0.0	0.0	0.0	0.3%	0.4%	0.5%
PCB 167	6.140	24.560	548.2		548.2	548.2	548.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 114	0.836	3.344	22.87		22.9	22.9	22.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.828	3.312	1450		1450	1450	1450	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 123	0.882	3.528	20.46		20.5	20.5	20.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	6.167	24.668	LT	EMPC, J	3.1			0.001	0.0			0.0%		
PCB 126	7.587	30.348	33.69	J	33.7	33.7	16.8	0.1	3.4	3.4	1.7	27.9%	30.4%	21.3%
PCB 77	5.853	23.412	33.05		33.1	33.1	33.1	0.05	1.7	1.7	1.7	13.7%	14.9%	20.9%
PCB 81	18.320	73.280	LT	J	9.2			0.1	0.9			7.6%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		6.0	5.9	4.4
All PCBs		6.1	5.2	3.5
All PCDDs/PCDFs/PCBs		12.1	11.1	7.9

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG29NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 29 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.204	4.816	2.75	B	2.8	2.8		0.001	0.0	0.0		0.0%	0.0%	
1234678-HpCDF	0.336	1.344	LT		0.2			0.01	0.0			0.0%		
1234789-HpCDF	0.506	2.025	LT		0.3			0.01	0.0			0.0%		
123478-HxCDD	0.258	1.032	0.862	B	0.9	0.9		0.05	0.0	0.0		0.6%	0.8%	
123478-HxCDF	0.424	1.696	LT		0.2			0.1	0.0			0.3%		
123678-HxCDD	0.238	0.951	2.24		2.2	2.2	2.2	0.01	0.0	0.0	0.0	0.3%	0.4%	0.5%
123678-HxCDF	0.439	1.756	LT		0.2			0.1	0.0			0.3%		
123789-HxCDD	0.476	1.904	LT		0.2			0.1	0.0			0.3%		
123789-HxCDF	0.926	3.704	LT		0.5			0.1	0.1			0.7%		
12378-PeCDD	0.253	1.013	2.06		2.1	2.1	2.1	1	2.1	2.1	2.1	29.6%	35.0%	43.8%
12378-PeCDF	0.397	1.588	LT		0.2			0.1	0.0			0.3%		
234678-HxCDF	0.570	2.280	LT		0.3			0.1	0.0			0.4%		
23478-PeCDF	0.401	1.604	LT		0.2			1	0.2			2.8%		
2378-TCDD	0.611	2.446	LT		0.3			1	0.3			4.2%		
2378-TCDF	0.399	1.596	LT	EMPC	0.2			1	0.2			2.8%		
OCDD	6.591	26.364	LT	EMPC	3.3			0	0			0%		
OCDF	1.025	4.100	LT		0.5			0.0001	0.0			0.0%		
PCB 189				NC, J				0.00001						
PCB 156	1.310	5.240	451		451	451	451	0.0001	0.0	0.0	0.0	0.6%	0.8%	0.9%
PCB 157	1.330	5.320	132.3		132.3	132.3	132.3	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.3%
PCB 105	0.848	3.392	728.5		728.5	728.5	728.5	0.0001	0.1	0.1	0.1	1.0%	1.2%	1.5%
PCB 167	1.240	4.960	165		165	165	165	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.826	3.304	16.67		16.7	16.7	16.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.794	3.176	1310		1310	1310	1310	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.3%
PCB 123	0.847	3.388	8.543		8.5	8.5	8.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	2.632	10.528	LT	EMPC, J	1.3			0.001	0.0			0.0%		
PCB 126	2.808	11.232	21.65	J	21.7	21.7	10.8	0.1	2.2	2.2	1.1	30.6%	36.2%	22.5%
PCB 77	3.205	12.820	30.27		30.3	30.3	30.3	0.05	1.5	1.5	1.5	21.3%	25.3%	31.6%
PCB 81	5.884	23.536	LT	J	2.9			0.1	0.3			4.1%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		3.0	2.2	2.1
All PCBs		4.1	3.8	2.7
All PCDDs/PCDFs/PCBs		7.1	6.0	4.8

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG06CC
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Cherry Creek

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.349	1.396	2.7	B	2.7	2.7	1.4	0.001	0.0	0.0	0.0	0.0%	0.0%	0.1%
1234678-HpCDF	0.276	1.104	LT		0.1			0.01	0.0			0.0%		
1234789-HpCDF	0.241	0.964	LT		0.1			0.01	0.0			0.0%		
123478-HxCDD	0.154	0.615	0.884	B	0.9	0.9	0.4	0.05	0.0	0.0	0.0	0.4%	0.6%	1.3%
123478-HxCDF	0.426	1.704	LT	EMPC	0.2			0.1	0.0			0.2%		
123678-HxCDD	0.129	0.517	1.6		1.6	1.6	1.6	0.01	0.0	0.0	0.0	0.2%	0.2%	1.1%
123678-HxCDF	0.551	2.204	LT	EMPC	0.3			0.1	0.0			0.3%		
123789-HxCDD	0.237	0.948	LT	EMPC	0.1			0.1	0.0			0.1%		
123789-HxCDF	0.949	3.796	LT	EMPC	0.5			0.1	0.1			0.5%		
12378-PeCDD	1.374	5.496	LT	EMPC	0.7			1	0.7			6.6%		
12378-PeCDF	0.425	1.700	LT	EMPC	0.2			0.1	0.0			0.2%		
234678-HxCDF	0.752	3.008	LT	EMPC	0.4			0.1	0.0			0.4%		
23478-PeCDF	0.862	3.448	LT	EMPC	0.4			1	0.4			3.8%		
2378-TCDD	0.408	1.631	LT		0.2			1	0.2			1.9%		
2378-TCDF	0.151	0.602	0.723	U	0.7	0.7	0.4	1	0.7	0.7	0.4	6.6%	10.0%	26.7%
OCDD	0.535	2.139	14.9	B	14.9	14.9	7.5	0	0	0	0	0%	0%	0%
OCDF	0.526	2.105	0.862	B	0.9	0.9		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189				NC, J				0.00001						
PCB 156	2.250	9.000	335.8		335.8	335.8	335.8	0.0001	0.0	0.0	0.0	0.3%	0.5%	2.2%
PCB 157	2.280	9.120	129.4		129.4	129.4	129.4	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.9%
PCB 105	0.806	3.224	651.6		651.6	651.6	651.6	0.0001	0.1	0.1	0.1	0.6%	0.9%	4.3%
PCB 167	2.130	8.520	300.6		300.6	300.6	300.6	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.2%
PCB 114	0.784	3.136	36.34		36.3	36.3	36.3	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.2%
PCB 118	0.755	3.020	1700		1700	1700	1700	0.00001	0.0	0.0	0.0	0.2%	0.2%	1.1%
PCB 123	0.805	3.220	31.23		31.2	31.2	31.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	5.244	20.976	5.704	J	5.7	5.7		0.001	0.0	0.0		0.1%	0.1%	
PCB 126	28.700	114.800	42.03	J	42	42		0.1	4.2	4.2		39.6%	60.0%	
PCB 77	8.195	32.780	37.85	J	37.9	37.9	18.9	0.05	1.9	1.9	0.9	17.9%	27.1%	63.0%
PCB 81	42.470	169.880	LT	J	21.2			0.1	2.1			20.0%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.2	0.8	0.4
All PCBs		8.4	6.2	1.1
All PCDDs/PCDFs/PCBs		10.6	7.0	1.5

All concentrations and TEQs are expressed in parts per trillion (ppt)

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG6NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 6 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.016	0.063	7.2		7.2	7.2	7.2	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.319	1.278	1.36		1.4	1.4	1.4	0.01	0.0	0.0	0.0	0.2%	0.2%	0.3%
1234789-HpCDF	0.547	2.189	LT		0.3			0.01	0.0			0.0%		
123478-HxCDD	0.160	0.640	1.74	B	1.7	1.7	0.9	0.05	0.1	0.1	0.0	1.0%	1.3%	0.9%
123478-HxCDF	0.111	0.443	1.33		1.3	1.3	1.3	0.1	0.1	0.1	0.1	1.5%	2.0%	2.5%
123678-HxCDD	0.137	0.547	3.05		3.1	3.1	3.1	0.01	0.0	0.0	0.0	0.3%	0.5%	0.6%
123678-HxCDF	0.098	0.390	1.34	B	1.3	1.3	0.7	0.1	0.1	0.1	0.1	1.5%	2.0%	1.4%
123789-HxCDD	0.712	2.848	LT	EMPC	0.4			0.1	0.0			0.4%		
123789-HxCDF	0.168	0.673	0.844	B	0.8	0.8	0.4	0.1	0.1	0.1	0.0	0.9%	1.2%	0.8%
12378-PeCDD	3.003	12.012	LT	EMPC	1.5			1	1.5			16.9%		
12378-PeCDF	0.221	0.883	0.593		0.6	0.6		0.1	0.1	0.1		0.7%	0.9%	
234678-HxCDF	0.131	0.523	1.51	B	1.5	1.5	0.8	0.1	0.2	0.2	0.1	1.7%	2.3%	1.6%
23478-PeCDF	1.159	4.636	LT	EMPC	0.6			1	0.6			6.7%		
2378-TCDD	0.596	2.384	LT	EMPC	0.3			1	0.3			3.4%		
2378-TCDF	0.265	1.060	0.511	U	0.5	0.5		1	0.5	0.5		5.6%	7.7%	
OCDD	0.323	1.293	40.4		40.4	40.4	40.4	0	0	0	0	0%	0%	0%
OCDF	0.568	2.272	1.44	B	1.4	1.4		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189				NC, J				0.00001						
PCB 156	4.780	19.120	355.3		355.3	355.3	355.3	0.0001	0.0	0.0	0.0	0.4%	0.5%	0.7%
PCB 157	103.000	412.000	LT	EMPC	51.5			0.0001	0.0			0.1%		
PCB 105	0.847	3.388	622.3		622.3	622.3	622.3	0.0001	0.1	0.1	0.1	0.7%	1.0%	1.2%
PCB 167	4.540	18.160	271.2		271.2	271.2	271.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 114	0.824	3.296	34.44		34.4	34.4	34.4	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 118	0.789	3.156	1620		1620	1620	1620	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.3%
PCB 123	0.841	3.364	28.48		28.5	28.5	28.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.902	3.606	6.164	J	6.2	6.2	3.1	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	1.771	7.084	31.47		31.5	31.5	31.5	0.1	3.2	3.2	3.2	35.4%	48.5%	61.8%
PCB 77	1.618	6.472	28.06		28.1	28.1	28.1	0.05	1.4	1.4	1.4	15.8%	21.6%	27.5%
PCB 81	3.040	12.160	6.006		6	6		0.1	0.6	0.6		6.7%	9.2%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		3.6	1.2	0.4
All PCBs		5.3	5.3	4.7
All PCDDs/PCDFs/PCBs		8.9	6.5	5.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG006
SAMPLE TYPE: American kestrel egg
LOCATION: Quality control sample, 0 pg/g PCB 126, trip blank

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.249	0.996	2.76	B	2.8	2.8	1.4	0.001	0.0	0.0	0.0	0.1%	0.4%	0.0%
1234678-HpCDF	0.126	0.504	0.364	B	0.4	0.4		0.01	0.0	0.0		0.2%	0.6%	
1234789-HpCDF	0.194	0.776	LT		0.1			0.01	0.0			0.0%		
123478-HxCDD	0.569	2.276	LT		0.3			0.05	0.0			0.6%		
123478-HxCDF	0.138	0.553	LT		0.1			0.1	0.0			0.4%		
123678-HxCDD	0.164	0.656	LT		0.1			0.01	0.0			0.0%		
123678-HxCDF	0.117	0.466	0.546	B	0.5	0.5	0.3	0.1	0.1	0.1	0.0	2.0%	7.1%	0.1%
123789-HxCDD	0.152	0.608	LT		0.1			0.1	0.0			0.4%		
123789-HxCDF	1.749	6.996	LT	EMPC	0.9			0.1	0.1			3.6%		
12378-PeCDD	0.790	3.160	LT	EMPC	0.4			1	0.4			16.0%		
12378-PeCDF	0.242	0.968	LT		0.1			0.1	0.0			0.4%		
234678-HxCDF	0.535	2.140	LT	EMPC	0.3			0.1	0.0			1.2%		
23478-PeCDF	0.054	0.216	LT		0			1	0.0			0.0%		
2378-TCDD	0.265	1.060	LT		0.1			1	0.1			4.0%		
2378-TCDF	0.267	1.068	LT		0.1			1	0.1			4.0%		
OCDD	0.233	0.933	25.7		25.7	25.7	25.7	0	0	0	0	0%	0%	0%
OCDF	0.360	1.439	1.69	B	1.7	1.7	0.8	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189			NC	NC, J				0.00001						
PCB 156		0.000	15.1		15.1	15.1	15.1	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.0%
PCB 157	2.140	8.560	LT		1.1			0.0001	0.0			0.0%		
PCB 105	1.690	6.760	76.61		76.6	76.6	76.6	0.0001	0.0	0.0	0.0	0.3%	1.1%	0.0%
PCB 167		0.000	7.88		7.9	7.9	7.9	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	5.190	20.760	5.7		5.7	5.7		0.0001	0.0	0.0		0.0%	0.1%	
PCB 118	1.620	6.480	224.4		224.4	224.4	224.4	0.00001	0.0	0.0	0.0	0.1%	0.3%	0.0%
PCB 123	1.730	6.920	LT		0.9			0.00001	0.0			0.0%		
PCB 169	4.740	18.960	LT	J	2.4			0.001	0.0			0.1%		
PCB 126	8.704	34.816	LT	J	4.4			0.1	0.4			17.6%		
PCB 77	3.605	14.420	12.25	B	12.3	12.3		0.05	0.6	0.6		24.6%	87.9%	
PCB 81	11.700	46.800	LT	EMPC, J	5.9			0.1	0.6			23.6%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		0.8	0.1	0.0
All PCBs		1.7	0.6	0.0
All PCDDs/PCDFs/PCBs		2.5	0.7	0.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG12NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 12 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.624	6.496	LT	EMPC	0.8			0.001	0.0			0.0%		
1234678-HpCDF	0.373	1.490	LT		0.2			0.01	0.0			0.0%		
1234789-HpCDF	0.591	2.363	LT		0.3			0.01	0.0			0.0%		
123478-HxCDD	0.611	2.444	LT	EMPC	0.3			0.05	0.0			0.2%		
123478-HxCDF	0.018	0.074	0.226	B	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.3%	0.5%	1.1%
123678-HxCDD	0.057	0.228	0.69	B	0.7	0.7	0.3	0.01	0.0	0.0	0.0	0.1%	0.2%	0.3%
123678-HxCDF	0.016	0.062	0.416	B	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.6%	0.9%	2.2%
123789-HxCDD	0.153	0.612	LT		0.1			0.1	0.0			0.1%		
123789-HxCDF	0.026	0.103	0.938	B	0.9	0.9	0.5	0.1	0.1	0.1	0.1	1.3%	2.0%	5.6%
12378-PeCDD	0.810	3.240	LT	EMPC	0.4			1	0.4			5.6%		
12378-PeCDF	0.239	0.956	LT	EMPC	0.1			0.1	0.0			0.1%		
234678-HxCDF	0.330	1.320	LT	EMPC	0.2			0.1	0.0			0.3%		
23478-PeCDF	0.292	1.168	LT	EMPC	0.1			1	0.1			1.4%		
2378-TCDD	0.372	1.488	LT		0.2			1	0.2			2.8%		
2378-TCDF	0.348	1.392	LT	EMPC	0.2			1	0.2			2.8%		
OCDD	0.445	1.780	11	B	11	11	5.5	0	0	0	0	0%	0%	0%
OCDF	1.079	4.316	LT	EMPC	0.5			0.0001	0.0			0.0%		
PCB 189				NC, J				0.00001						
PCB 156	0.812	3.248	274		274	274	274	0.0001	0.0	0.0	0.0	0.4%	0.6%	3.0%
PCB 157	0.823	3.292	64.53		64.5	64.5	64.5	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.7%
PCB 105	0.582	2.328	287.8		287.8	287.8	287.8	0.0001	0.0	0.0	0.0	0.4%	0.7%	3.2%
PCB 167	0.770	3.080	203.8		203.8	203.8	203.8	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.2%
PCB 114	0.566	2.264	12.91		12.9	12.9	12.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 118	0.576	2.304	870.4		870.4	870.4	870.4	0.00001	0.0	0.0	0.0	0.1%	0.2%	1.0%
PCB 123	0.614	2.456	11.4		11.4	11.4	11.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	7.632	30.528	LT	J	3.8			0.001	0.0			0.1%		
PCB 126	10.530	42.120	27.19	J	27.2	27.2		0.1	2.7	2.7		38.3%	61.8%	
PCB 77	4.079	16.316	29.11	J	29.1	29.1	14.6	0.05	1.5	1.5	0.7	20.5%	33.1%	81.1%
PCB 81	34.140	136.560	LT	J	17.1			0.1	1.7			24.1%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.1	0.2	0.1
All PCBs		6.0	4.2	0.8
All PCDDs/PCDFs/PCBs		7.1	4.4	0.9

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG3NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 3 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.856	3.424	22.8		22.8	22.8	22.8	0.001	0.0	0.0	0.0	0.2%	0.2%	0.2%
1234678-HpCDF	0.374	1.495	3.69		3.7	3.7	3.7	0.01	0.0	0.0	0.0	0.3%	0.3%	0.4%
1234789-HpCDF	0.764	3.055	LT		0.4			0.01	0.0			0.0%		
123478-HxCDD	0.152	0.608	4.09		4.1	4.1	4.1	0.05	0.2	0.2	0.2	1.5%	1.7%	2.2%
123478-HxCDF	0.218	0.870	1.39		1.4	1.4	1.4	0.1	0.1	0.1	0.1	1.1%	1.1%	1.5%
123678-HxCDD	0.136	0.544	6.64		6.6	6.6	6.6	0.01	0.1	0.1	0.1	0.5%	0.5%	0.7%
123678-HxCDF	1.347	5.388	LT	EMPC	0.7			0.1	0.1			0.5%		
123789-HxCDD	0.132	0.527	1.66		1.7	1.7	1.7	0.1	0.2	0.2	0.2	1.3%	1.4%	1.8%
123789-HxCDF	1.030	4.120	LT	EMPC	0.5			0.1	0.1			0.4%		
12378-PeCDD	0.069	0.276	4.5		4.5	4.5	4.5	1	4.5	4.5	4.5	33.8%	36.6%	47.9%
12378-PeCDF	0.303	1.212	LT		0.2			0.1	0.0			0.2%		
234678-HxCDF	2.305	9.220	LT	EMPC	1.2			0.1	0.1			0.9%		
23478-PeCDF	0.810	3.240	LT	EMPC	0.4			1	0.4			3.0%		
2378-TCDD	0.469	1.875	0.789		0.8	0.8		1	0.8	0.8		6.0%	6.5%	
2378-TCDF	0.540	2.160	LT	EMPC	0.3			1	0.3			2.3%		
OCDD	0.904	3.614	54.4		54.4	54.4	54.4	0	0	0	0	0%	0%	0%
OCDF	1.046	4.184	3.25	B	3.3	3.3		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189			NC	NC, J				0.00001						
PCB 156	2.040	8.160	434.4		434.4	434.4	434.4	0.0001	0.0	0.0	0.0	0.3%	0.4%	0.5%
PCB 157	2.070	8.280	150		150	150	150	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 105	1.650	6.600	982.3		982.3	982.3	982.3	0.0001	0.1	0.1	0.1	0.7%	0.8%	1.0%
PCB 167	1.930	7.720	270.2		270.2	270.2	270.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	1.610	6.440	50.21		50.2	50.2	50.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 118	1.540	6.160	2010		2010	2010	2010	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 123	1.640	6.560	35.67		35.7	35.7	35.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	6.190	24.760	LT	EMPC, J	3.1			0.001	0.0			0.0%		
PCB 126	6.661	26.644	31.14		31.1	31.1	31.1	0.1	3.1	3.1	3.1	23.4%	25.3%	33.1%
PCB 77	1.487	5.948	41.51	J	41.5	41.5	20.8	0.05	2.1	2.1	1.0	15.6%	16.9%	11.1%
PCB 81	6.149	24.596	9.926	J	9.9	9.9		0.1	1.0	1.0		7.4%	8.0%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		6.9	5.9	5.1
All PCBs		6.4	6.4	4.3
All PCDDs/PCDFs/PCBs		13.3	12.3	9.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG009
SAMPLE TYPE: American kestrel egg
LOCATION: Quality control sample, 0 pg/g PCB 126, trip blank

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.580	2.321	3.04	B	3	3	1.5	0.001	0.0	0.0	0.0	0.2%	0.3%	0.4%
1234678-HpCDF	0.401	1.604	LT		0.2			0.01	0.0			0.1%		
1234789-HpCDF	0.483	1.933	LT		0.2			0.01	0.0			0.1%		
123478-HxCDD	0.710	2.840	LT		0.4			0.05	0.0			1.0%		
123478-HxCDF	0.166	0.665	LT		0.1			0.1	0.0			0.5%		
123678-HxCDD	0.108	0.431	LT		0.1			0.01	0.0			0.1%		
123678-HxCDF	0.139	0.558	0.467	B	0.5	0.5		0.1	0.1	0.1		2.5%	5.6%	0.0%
123789-HxCDD	0.107	0.428	LT		0.1			0.1	0.0			0.5%		
123789-HxCDF	0.178	0.710	1.5	B	1.5	1.5	0.8	0.1	0.2	0.2	0.1	7.5%	16.7%	20.0%
12378-PeCDD	0.827	3.308	LT		0.4			1	0.4			20.0%		
12378-PeCDF	0.300	1.199	LT		0.1			0.1	0.0			0.5%		
234678-HxCDF	0.736	2.944	LT	EMPC	0.4			0.1	0.0			2.0%		
23478-PeCDF	0.227	0.906	LT		0.1			1	0.1			5.0%		
2378-TCDD	0.351	1.404	LT		0.2			1	0.2			10.0%		
2378-TCDF	0.313	1.252	LT		0.2			1	0.2			10.0%		
OCDD	0.805	3.220	36.1		36.1	36.1	36.1	0	0	0	0	0%	0%	0%
OCDF	0.556	2.222	1.74	B	1.7	1.7		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189			NC	NC, J				0.00001						
PCB 156	2.770	11.080	13.09	B	13.1	13.1	6.5	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 157	2.810	11.240	LT		1.4			0.0001	0.0			0.0%		
PCB 105	1.290	5.160	36.95	B	37	37	18.5	0.0001	0.0	0.0	0.0	0.2%	0.4%	0.5%
PCB 167	6.190	24.760	LT		3.1			0.00001	0.0			0.0%		
PCB 114	3.120	12.480	LT	EMPC	1.6			0.0001	0.0			0.0%		
PCB 118	1.200	4.800	100.2	B	100.2	100.2	50.1	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	1.280	5.120	LT		0.6			0.00001	0.0			0.0%		
PCB 169	0.535	2.139	LT		0.3			0.001	0.0			0.0%		
PCB 126	0.606	2.424	LT		0.3			0.1	0.0			1.5%		
PCB 77	1.720	6.880	10.46	B	10.5	10.5	5.2	0.05	0.5	0.5	0.3	26.3%	58.3%	65.0%
PCB 81	1.651	6.604	2.117	B	2.1	2.1		0.1	0.2	0.2		10.5%	23.3%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.2	0.2	0.1
All PCBs		0.8	0.7	0.3
All PCDDs/PCDFs/PCBs		2.0	0.9	0.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG05CC
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Cherry Creek Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.588	2.354	2.81	B	2.8	2.8	1.4	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.681	6.724	LT		0.8			0.01	0.0			0.1%		
1234789-HpCDF	2.800	11.200	LT		1.4			0.01	0.0			0.2%		
123478-HxCDD	0.942	3.768	LT	EMPC	0.5			0.05	0.0			0.4%		
123478-HxCDF	0.336	1.344	LT	EMPC	0.2			0.1	0.0			0.3%		
123678-HxCDD	0.976	3.904	LT	EMPC	0.5			0.01	0.0			0.1%		
123678-HxCDF	0.364	1.456	LT	EMPC	0.2			0.1	0.0			0.3%		
123789-HxCDD	0.405	1.620	LT	EMPC	0.2			0.1	0.0			0.3%		
123789-HxCDF	0.194	0.774	0.945	B	0.9	0.9	0.5	0.1	0.1	0.1	0.1	1.3%	1.4%	1.2%
12378-PeCDD	0.392	1.566	1.35		1.4	1.4		1	1.4	1.4		19.7%	22.2%	
12378-PeCDF	0.199	0.796	LT		0.1			0.1	0.0			0.1%		
234678-HxCDF	0.554	2.216	LT	EMPC	0.3			0.1	0.0			0.4%		
23478-PeCDF	0.506	2.024	LT	EMPC	0.3			1	0.3			4.2%		
2378-TCDD	0.438	1.753	LT		0.2			1	0.2			2.8%		
2378-TCDF	0.310	1.240	0.551	U	0.6	0.6		1	0.6	0.6		8.5%	9.5%	
OCDD	0.860	3.439	17.9	B	17.9	17.9	9	0	0	0	0	0%	0%	0%
OCDF	1.390	5.560	LT		0.7			0.0001	0.0			0.0%		
PCB 189				NC, J				0.00001						
PCB 156	3.070	12.280	326.3		326.3	326.3	326.3	0.0001	0.0	0.0	0.0	0.5%	0.5%	0.8%
PCB 157	3.110	12.440	93.66		93.7	93.7	93.7	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 105	0.216	0.864	285.9		285.9	285.9	285.9	0.0001	0.0	0.0	0.0	0.4%	0.5%	0.7%
PCB 167	2.910	11.640	307.5		307.5	307.5	307.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 114	0.210	0.840	21.4		21.4	21.4	21.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.201	0.804	1020		1020	1020	1020	0.00001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 123	0.214	0.856	23.96		24	24	24	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.012	4.048	9.304		9.3	9.3	9.3	0.001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 126	0.908	3.633	25.04		25	25	25	0.1	2.5	2.5	2.5	35.2%	39.7%	58.1%
PCB 77	1.080	4.320	31.98		32	32	32	0.05	1.6	1.6	1.6	22.5%	25.4%	37.2%
PCB 81	4.562	18.248	LT	EMPC	2.3			0.1	0.2			3.2%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.7	2.1	0.1
All PCBs		4.4	4.2	4.2
All PCDDs/PCDFs/PCBs		7.1	6.3	4.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG31NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 31 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.180	0.719	7.79		7.8	7.8	7.8	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.188	0.751	1.41		1.4	1.4	1.4	0.01	0.0	0.0	0.0	0.2%	0.2%	0.2%
1234789-HpCDF	0.288	1.150	LT		0.1			0.01	0.0			0.0%		
123478-HxCDD	0.065	0.260	1.21	B	1.2	1.2	0.6	0.05	0.1	0.1	0.0	0.9%	0.9%	0.5%
123478-HxCDF	0.517	2.068	LT	EMPC	0.3			0.1	0.0			0.4%		
123678-HxCDD	1.728	6.912	LT	EMPC	0.9			0.01	0.0			0.1%		
123678-HxCDF	0.141	0.562	0.937	B	0.9	0.9	0.5	0.1	0.1	0.1	0.1	1.3%	1.4%	0.9%
123789-HxCDD	0.693	2.772	LT	EMPC	0.3			0.1	0.0			0.4%		
123789-HxCDF	0.203	0.813	0.764	B	0.8	0.8		0.1	0.1	0.1		1.2%	1.2%	
12378-PeCDD	0.039	0.156	1.36		1.4	1.4	1.4	1	1.4	1.4	1.4	20.6%	21.5%	24.1%
12378-PeCDF	0.104	0.416	0.218	B	0.2	0.2		0.1	0.0	0.0		0.3%	0.3%	
234678-HxCDF	0.191	0.765	4.16		4.2	4.2	4.2	0.1	0.4	0.4	0.4	6.2%	6.5%	7.2%
23478-PeCDF	0.078	0.312	0.34	B	0.3	0.3	0.2	1	0.3	0.3	0.2	4.4%	4.6%	3.4%
2378-TCDD	0.405	1.620	LT	EMPC	0.2			1	0.2			2.9%		
2378-TCDF	0.139	0.556	0.247	U, B	0.2	0.2		1	0.2	0.2		2.9%	3.1%	
OCDD	0.179	0.717	32.9		32.9	32.9	32.9	0	0	0	0	0%	0%	0%
OCDF	0.370	1.478	2.21	B	2.2	2.2	1.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189				NC, J				0.00001						
PCB 156	1.540	6.160	1080		1080	1080	1080	0.0001	0.1	0.1	0.1	1.6%	1.7%	1.9%
PCB 157	1.560	6.240	356.4		356.4	356.4	356.4	0.0001	0.0	0.0	0.0	0.5%	0.5%	0.6%
PCB 105	0.423	1.692	993.8		993.8	993.8	993.8	0.0001	0.1	0.1	0.1	1.5%	1.5%	1.7%
PCB 167	1.460	5.840	227.4		227.4	227.4	227.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.412	1.648	36.67		36.7	36.7	36.7	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	0.389	1.556	2130		2130	2130	2130	0.00001	0.0	0.0	0.0	0.3%	0.3%	0.4%
PCB 123	0.415	1.660	19.26		19.3	19.3	19.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.212	0.846	5.175		5.2	5.2	5.2	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.389	1.558	23.61		23.6	23.6	23.6	0.1	2.4	2.4	2.4	34.7%	36.3%	40.7%
PCB 77	0.838	3.350	20.97		21	21	21	0.05	1.1	1.1	1.1	15.4%	16.2%	18.1%
PCB 81	0.813	3.250	2.511	B	2.5	2.5		0.1	0.3	0.3		3.7%	3.8%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.9	2.6	2.1
All PCBs		3.9	3.9	3.7
All PCDDs/PCDFs/PCBs		6.8	6.5	5.8

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG02AR
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Aurora Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.283	1.130	3.74	B	3.7	3.7	1.9	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	0.341	1.364	1.71		1.7	1.7	1.7	0.01	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234789-HpCDF	0.675	2.700	LT	EMPC	0.3			0.01	0.0			0.0%		
123478-HxCDD	0.189	0.758	9.98		10	10	10	0.05	0.5	0.5	0.5	0.2%	0.2%	0.2%
123478-HxCDF	0.182	0.727	90		90	90	90	0.1	9.0	9.0	9.0	3.9%	3.9%	4.3%
123678-HxCDD	0.166	0.662	12.3		12.3	12.3	12.3	0.01	0.1	0.1	0.1	0.1%	0.1%	0.1%
123678-HxCDF	0.155	0.618	37.2		37.2	37.2	37.2	0.1	3.7	3.7	3.7	1.6%	1.6%	1.8%
123789-HxCDD	0.162	0.647	2.78		2.8	2.8	2.8	0.1	0.3	0.3	0.3	0.1%	0.1%	0.1%
123789-HxCDF	0.205	0.820	4.12		4.1	4.1	4.1	0.1	0.4	0.4	0.4	0.2%	0.2%	0.2%
12378-PeCDD	0.072	0.288	32.4		32.4	32.4	32.4	1	32.4	32.4	32.4	14.0%	14.0%	15.6%
12378-PeCDF	0.097	0.387	126		126	126	126	0.1	12.6	12.6	12.6	5.4%	5.4%	6.1%
234678-HxCDF	0.189	0.756	10.6		10.6	10.6	10.6	0.1	1.1	1.1	1.1	0.5%	0.5%	0.5%
23478-PeCDF	0.079	0.315	88.8		88.8	88.8	88.8	1	88.8	88.8	88.8	38.3%	38.3%	42.7%
2378-TCDD	0.191	0.763	5.02		5	5	5	1	5.0	5.0	5.0	2.2%	2.2%	2.4%
2378-TCDF	0.123	0.492	47.2	U	47.2	47.2	23.6	1	47.2	47.2	23.6	20.4%	20.4%	11.3%
OCDD	0.196	0.785	13	B	13	13	6.5	0	0	0	0	0%	0%	0%
OCDF	0.468	1.871	0.722	B	0.7	0.7		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189				NC, J				0.00001						
PCB 156	0.388	1.552	816.4		816.4	816.4	816.4	0.0001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 157	0.393	1.572	261.4		261.4	261.4	261.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	0.706	2.824	428.3		428.3	428.3	428.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	0.368	1.472	797.3		797.3	797.3	797.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.687	2.748	60.7		60.7	60.7	60.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.666	2.664	1420		1420	1420	1420	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	0.710	2.840	69.26		69.3	69.3	69.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.350	1.400	55.47		55.5	55.5	55.5	0.001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 126	0.585	2.339	200.5		200.5	200.5	200.5	0.1	20.1	20.1	20.1	8.7%	8.7%	9.6%
PCB 77	0.691	2.763	117.1		117.1	117.1	117.1	0.05	5.9	5.9	5.9	2.5%	2.5%	2.8%
PCB 81	0.680	2.720	44.78		44.8	44.8	44.8	0.1	4.5	4.5	4.5	1.9%	1.9%	2.2%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		201.1	201.1	177.5
All PCBs		30.6	30.6	30.6
All PCDDs/PCDFs/PCBs		231.7	231.7	208.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG013
SAMPLE TYPE: American kestrel egg
LOCATION: Quality control sample, 0 pg/g PCB 126, vehicle blank

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.118	0.473	2.31	B	2.3	2.3	1.2	0.001	0.0	0.0	0.0	0.1%	0.3%	0.0%
1234678-HpCDF	0.532	2.128	LT		0.3			0.01	0.0			0.2%		
1234789-HpCDF	0.995	3.979	LT		0.5			0.01	0.0			0.3%		
123478-HxCDD	0.250	1.000	LT		0.1			0.05	0.0			0.3%		
123478-HxCDF	0.233	0.932	LT		0.1			0.1	0.0			0.5%		
123678-HxCDD	0.156	0.623	LT	J	0.1			0.01	0.0			0.1%		
123678-HxCDF	0.423	1.692	LT	J	0.2			0.1	0.0			1.0%		
123789-HxCDD	0.149	0.594	LT		0.1			0.1	0.0			0.5%		
123789-HxCDF	1.314	5.256	LT		0.7			0.1	0.1			3.5%		
12378-PeCDD	0.562	2.248	LT		0.3			1	0.3			15.0%		
12378-PeCDF	0.059	0.236	LT		0			0.1	0.0			0.0%		
234678-HxCDF	0.723	2.892	LT		0.4			0.1	0.0			2.0%		
23478-PeCDF	0.045	0.179	LT		0			1	0.0			0.0%		
2378-TCDD	0.689	2.756	LT		0.3			1	0.3			15.0%		
2378-TCDF	0.340	1.361	LT		0.2			1	0.2			10.0%		
OCDD	1.488	5.952	27.5		27.5	27.5	27.5	0	0	0	0	0%	0%	0%
OCDF	3.876	15.504	LT		1.9			0.0001	0.0			0.0%		
PCB 189			NC	NC, J				0.00001						
PCB 156	1.460	5.840	16.97		17	17	17	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.0%
PCB 157	1.480	5.920	4.048		4	4		0.0001	0.0	0.0		0.0%	0.1%	
PCB 105	0.685	2.740	62.18		62.2	62.2	62.2	0.0001	0.0	0.0	0.0	0.3%	0.8%	0.0%
PCB 167	1.390	5.560	6.847		6.8	6.8	6.8	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.666	2.664	4.779		4.8	4.8	4.8	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.0%
PCB 118	0.657	2.628	172		172	172	172	0.00001	0.0	0.0	0.0	0.1%	0.2%	0.0%
PCB 123	0.700	2.800	LT		0.4			0.00001	0.0			0.0%		
PCB 169	0.748	2.990	LT		0.4			0.001	0.0			0.0%		
PCB 126	2.459	9.836	4.189		4.2	4.2		0.1	0.4	0.4		21.0%	52.5%	
PCB 77	3.067	12.268	7.569	B	7.6	7.6		0.05	0.4	0.4		19.0%	47.5%	
PCB 81	2.828	11.312	LT		1.4			0.1	0.1			7.0%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.0	0.0	0.0
All PCBs		1.0	0.8	0.0
All PCDDs/PCDFs/PCBs		2.0	0.8	0.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG20NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 20 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.020	0.079	11.3		11.3	11.3	11.3	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.598	2.392	2.84		2.8	2.8	2.8	0.01	0.0	0.0	0.0	0.2%	0.2%	0.2%
1234789-HpCDF	0.868	3.472	LT		0.4			0.01	0.0			0.0%		
123478-HxCDD	0.036	0.145	2.63		2.6	2.6	2.6	0.05	0.1	0.1	0.1	1.0%	1.1%	1.2%
123478-HxCDF	0.038	0.153	1.51		1.5	1.5	1.5	0.1	0.2	0.2	0.2	1.2%	1.3%	1.3%
123678-HxCDD	0.029	0.117	5.08		5.1	5.1	5.1	0.01	0.1	0.1	0.1	0.4%	0.4%	0.5%
123678-HxCDF	0.032	0.129	1.49	B	1.5	1.5	0.7	0.1	0.2	0.2	0.1	1.2%	1.3%	0.6%
123789-HxCDD	0.030	0.119	2.01		2	2	2	0.1	0.2	0.2	0.2	1.6%	1.7%	1.8%
123789-HxCDF	0.041	0.162	0.654	B	0.7	0.7	0.3	0.1	0.1	0.1	0.0	0.6%	0.6%	0.3%
12378-PeCDD	0.088	0.353	2.74		2.7	2.7	2.7	1	2.7	2.7	2.7	21.6%	22.9%	23.9%
12378-PeCDF	0.416	1.664	LT	EMPC	0.2			0.1	0.0			0.2%		
234678-HxCDF	0.042	0.170	1.89	B	1.9	1.9	0.9	0.1	0.2	0.2	0.1	1.5%	1.6%	0.8%
23478-PeCDF	1.004	4.016	LT	EMPC	0.5			1	0.5			4.0%		
2378-TCDD	0.436	1.744	LT	EMPC	0.2			1	0.2			1.6%		
2378-TCDF	0.073	0.292	0.564	U	0.6	0.6	0.3	1	0.6	0.6	0.3	4.8%	5.1%	2.7%
OCDD	0.124	0.495	20	B	20	20	10	0	0	0	0	0%	0%	0%
OCDF	0.150	0.601	1.18	B	1.2	1.2	0.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189			NC	NC, J				0.00001						
PCB 156	1.710	6.840	632.5		632.5	632.5	632.5	0.0001	0.1	0.1	0.1	0.5%	0.5%	0.6%
PCB 157	1.730	6.920	163.7		163.7	163.7	163.7	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.308	1.232	477.3		477.3	477.3	477.3	0.0001	0.0	0.0	0.0	0.4%	0.4%	0.4%
PCB 167	1.620	6.480	423.9		423.9	423.9	423.9	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.300	1.200	35.27		35.3	35.3	35.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.285	1.140	1470		1470	1470	1470	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.304	1.216	33.41		33.4	33.4	33.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.206	0.825	7.623		7.6	7.6	7.6	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.822	3.288	41.24		41.2	41.2	41.2	0.1	4.1	4.1	4.1	33.0%	34.9%	36.5%
PCB 77	0.756	3.024	54.26		54.3	54.3	54.3	0.05	2.7	2.7	2.7	21.7%	23.0%	24.0%
PCB 81	0.781	3.123	4.557		4.6	4.6	4.6	0.1	0.5	0.5	0.5	3.7%	3.9%	4.1%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		5.0	4.3	3.8
All PCBs		7.5	7.5	7.5
All PCDDs/PCDFs/PCBs		12.5	11.8	11.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG04NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 4 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.295	1.180	12.2		12.2	12.2	12.2	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.045	4.180	3.46		3.5	3.5		0.01	0.0	0.0		0.1%	0.1%	
1234789-HpCDF	1.925	7.700	LT		1			0.01	0.0			0.0%		
123478-HxCDD	2.047	8.188	LT	EMPC	1			0.05	0.1			0.1%		
123478-HxCDF	0.195	0.781	1.06		1.1	1.1	1.1	0.1	0.1	0.1	0.1	0.3%	0.3%	0.3%
123678-HxCDD	0.266	1.063	3.62		3.6	3.6	3.6	0.01	0.0	0.0	0.0	0.1%	0.1%	0.1%
123678-HxCDF	0.182	0.727	1.34	B	1.3	1.3	0.7	0.1	0.1	0.1	0.1	0.3%	0.3%	0.2%
123789-HxCDD	0.262	1.049	0.866	B	0.9	0.9		0.1	0.1	0.1		0.2%	0.2%	
123789-HxCDF	0.432	1.728	0.732	B	0.7	0.7		0.1	0.1	0.1		0.2%	0.2%	
12378-PeCDD	2.991	11.964	LT	EMPC	1.5			1	1.5			3.6%		
12378-PeCDF	0.137	0.547	0.61		0.6	0.6	0.6	0.1	0.1	0.1	0.1	0.1%	0.2%	0.2%
234678-HxCDF	0.325	1.299	2.85		2.9	2.9	2.9	0.1	0.3	0.3	0.3	0.7%	0.7%	0.8%
23478-PeCDF	0.102	0.406	1.25		1.3	1.3	1.3	1	1.3	1.3	1.3	3.2%	3.3%	3.4%
2378-TCDD	0.361	1.442	0.478	B	0.5	0.5		1	0.5	0.5		1.2%	1.3%	
2378-TCDF	1.140	4.560	LT	EMPC	0.6			1	0.6			1.5%		
OCDD	0.582	2.328	48.3		48.3	48.3	48.3	0	0	0	0	0%	0%	0%
OCDF	0.763	3.050	2.92	B	2.9	2.9		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189			NC	NC, J				0.00001						
PCB 156	4.230	16.920	1540		1540	1540	1540	0.0001	0.2	0.2	0.2	0.4%	0.4%	0.4%
PCB 157	4.290	17.160	478.2		478.2	478.2	478.2	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.177	0.708	1900		1900	1900	1900	0.0001	0.2	0.2	0.2	0.5%	0.5%	0.5%
PCB 167	4.010	16.040	1170		1170	1170	1170	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.172	0.688	145.6		145.6	145.6	145.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.165	0.660	5160		5160	5160	5160	0.00001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 123	0.175	0.700	133.9		133.9	133.9	133.9	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.373	1.491	11.95		12	12	12	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.823	3.293	83.87		83.9	83.9	83.9	0.1	8.4	8.4	8.4	20.4%	21.5%	21.9%
PCB 77	1.417	5.668	493.4		493.4	493.4	493.4	0.05	24.7	24.7	24.7	59.9%	63.3%	64.4%
PCB 81	1.341	5.364	28.32		28.3	28.3	28.3	0.1	2.8	2.8	2.8	6.9%	7.3%	7.4%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		4.8	2.6	1.9
All PCBs		36.4	36.4	36.4
All PCDDs/PCDFs/PCBs		41.2	39.0	38.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG10CC
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Cherry Creek Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.304	1.216	3.12	B	3.1	3.1	1.6	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	2.203	8.812	LT		1.1			0.01	0.0			0.1%		
1234789-HpCDF	3.174	12.696	LT		1.6			0.01	0.0			0.1%		
123478-HxCDD	0.120	0.481	1.34	B	1.3	1.3	0.7	0.05	0.1	0.1	0.0	0.3%	0.3%	0.2%
123478-HxCDF	0.284	1.136	LT	EMPC	0.1			0.1	0.0			0.0%		
123678-HxCDD	0.102	0.408	2.72		2.7	2.7	2.7	0.01	0.0	0.0	0.0	0.1%	0.1%	0.1%
123678-HxCDF	0.074	0.298	0.563	B	0.6	0.6	0.3	0.1	0.1	0.1	0.0	0.3%	0.3%	0.2%
123789-HxCDD	0.101	0.404	0.203	B	0.2	0.2		0.1	0.0	0.0		0.1%	0.1%	
123789-HxCDF	0.094	0.375	0.893	B	0.9	0.9	0.4	0.1	0.1	0.1	0.0	0.4%	0.5%	0.2%
12378-PeCDD	0.212	0.848	2.24		2.2	2.2	2.2	1	2.2	2.2	2.2	10.5%	11.3%	11.4%
12378-PeCDF	0.144	0.576	0.355		0.4	0.4		0.1	0.0	0.0		0.2%	0.2%	
234678-HxCDF	0.546	2.184	LT	EMPC	0.3			0.1	0.0			0.1%		
23478-PeCDF	1.172	4.688	LT	EMPC	0.6			1	0.6			2.9%		
2378-TCDD	0.508	2.032	LT	EMPC	0.3			1	0.3			1.4%		
2378-TCDF	0.918	3.672	LT	EMPC	0.5			1	0.5			2.4%		
OCDD	0.253	1.014	20.3	B	20.3	20.3	10.2	0	0	0	0	0%	0%	0%
OCDF	0.518	2.072	1.03	B	1	1		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189				NC, J				0.00001						
PCB 156	1.780	7.120	1320		1320	1320	1320	0.0001	0.1	0.1	0.1	0.6%	0.7%	0.7%
PCB 157	1.800	7.200	348.1		348.1	348.1	348.1	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 105	0.194	0.776	1150		1150	1150	1150	0.0001	0.1	0.1	0.1	0.5%	0.6%	0.6%
PCB 167	1.690	6.760	829.7		829.7	829.7	829.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.189	0.756	86.06		86.1	86.1	86.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.192	0.768	4330		4330	4330	4330	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 123	0.205	0.820	73.47		73.5	73.5	73.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.778	3.113	16.22		16.2	16.2	16.2	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.841	3.362	95.29		95.3	95.3	95.3	0.1	9.5	9.5	9.5	45.4%	48.9%	49.4%
PCB 77	1.444	5.776	121.2		121.2	121.2	121.2	0.05	6.1	6.1	6.1	28.9%	31.1%	31.4%
PCB 81	1.399	5.596	10.89		10.9	10.9	10.9	0.1	1.1	1.1	1.1	5.2%	5.6%	5.6%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		4.0	2.5	2.3
All PCBs		17.0	17.0	17.0
All PCDDs/PCDFs/PCBs		21.0	19.5	19.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG35NE
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 35 NE

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.281	1.125	7.59		7.6	7.6	7.6	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.347	1.387	2.05		2.1	2.1	2.1	0.01	0.0	0.0	0.0	0.1%	0.2%	0.2%
1234789-HpCDF	0.487	1.948	LT		0.2			0.01	0.0			0.0%		
123478-HxCDD	0.070	0.278	3.24		3.2	3.2	3.2	0.05	0.2	0.2	0.2	1.1%	1.2%	1.2%
123478-HxCDF	0.119	0.475	1.03	B	1	1	0.5	0.1	0.1	0.1	0.1	0.7%	0.7%	0.4%
123678-HxCDD	0.062	0.248	3.95		4	4	4	0.01	0.0	0.0	0.0	0.3%	0.3%	0.3%
123678-HxCDF	0.103	0.412	1.71		1.7	1.7	1.7	0.1	0.2	0.2	0.2	1.2%	1.2%	1.3%
123789-HxCDD	0.060	0.240	1.76		1.8	1.8	1.8	0.1	0.2	0.2	0.2	1.2%	1.3%	1.3%
123789-HxCDF	0.121	0.483	0.679	B	0.7	0.7	0.3	0.1	0.1	0.1	0.0	0.5%	0.5%	0.2%
12378-PeCDD	0.025	0.101	4.81		4.8	4.8	4.8	1	4.8	4.8	4.8	32.9%	35.0%	35.3%
12378-PeCDF	0.047	0.189	0.505		0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.3%	0.4%	0.4%
234678-HxCDF	0.119	0.478	2.81		2.8	2.8	2.8	0.1	0.3	0.3	0.3	1.9%	2.0%	2.1%
23478-PeCDF	0.037	0.149	1.38		1.4	1.4	1.4	1	1.4	1.4	1.4	9.6%	10.2%	10.3%
2378-TCDD	1.053	4.212	LT	EMPC	0.5			1	0.5			3.4%		
2378-TCDF	0.708	2.832	LT	EMPC	0.4			1	0.4			2.7%		
OCDD	0.225	0.902	28.3		28.3	28.3	28.3	0	0	0	0	0%	0%	0%
OCDF	0.250	1.000	1.51	B	1.5	1.5	0.8	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189				NC, J				0.00001						
PCB 156	2.110	8.440	557.5		557.5	557.5	557.5	0.0001	0.1	0.1	0.1	0.4%	0.4%	0.4%
PCB 157	2.140	8.560	216.2		216.2	216.2	216.2	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 105	0.163	0.652	497.3		497.3	497.3	497.3	0.0001	0.0	0.0	0.0	0.3%	0.4%	0.4%
PCB 167	2.000	8.000	388.5		388.5	388.5	388.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.159	0.636	34.28		34.3	34.3	34.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.152	0.608	1420		1420	1420	1420	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.162	0.648	31.47		31.5	31.5	31.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.352	1.408	7.066		7.1	7.1	7.1	0.001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 126	0.588	2.351	38.97		39	39	39	0.1	3.9	3.9	3.9	26.7%	28.5%	28.7%
PCB 77	0.994	3.976	39.6		39.6	39.6	39.6	0.05	2.0	2.0	2.0	13.6%	14.5%	14.6%
PCB 81	1.008	4.032	4.143		4.1	4.1	4.1	0.1	0.4	0.4	0.4	2.8%	3.0%	3.0%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		8.2	7.3	7.2
All PCBs		6.4	6.4	6.4
All PCDDs/PCDFs/PCBs		14.6	13.7	13.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG32SW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 32 SW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.125	0.501	2.67	B	2.7	2.7	1.3	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	0.952	3.808	LT	EMPC	0.5			0.01	0.0			0.1%		
1234789-HpCDF	0.693	2.774	LT		0.3			0.01	0.0			0.0%		
123478-HxCDD	0.094	0.376	0.768	B	0.8	0.8	0.4	0.05	0.0	0.0	0.0	0.4%	0.4%	0.2%
123478-HxCDF	0.089	0.355	3.78		3.8	3.8	3.8	0.1	0.4	0.4	0.4	4.0%	4.2%	4.4%
123678-HxCDD	1.274	5.096	LT	EMPC	0.6			0.01	0.0	0.0	0.0	0.1%		
123678-HxCDF	0.076	0.304	1.92		1.9	1.9	1.9	0.1	0.2	0.2	0.2	2.0%	2.1%	2.2%
123789-HxCDD	0.328	1.312	LT	EMPC	0.2			0.1	0.0	0.0	0.0	0.2%		
123789-HxCDF	0.090	0.361	0.836	B	0.8	0.8	0.4	0.1	0.1	0.1	0.0	0.8%	0.9%	0.5%
12378-PeCDD	0.101	0.404	1.29		1.3	1.3	1.3	1	1.3	1.3	1.3	13.7%	14.3%	15.1%
12378-PeCDF	0.122	0.486	1.39		1.4	1.4	1.4	0.1	0.1	0.1	0.1	1.5%	1.5%	1.6%
234678-HxCDF	0.104	0.417	0.671	B	0.7	0.7	0.3	0.1	0.1	0.1	0.0	0.7%	0.8%	0.3%
23478-PeCDF	0.099	0.398	1.11		1.1	1.1	1.1	1	1.1	1.1	1.1	11.6%	12.1%	12.8%
2378-TCDD	0.252	1.007	0.37	B	0.4	0.4		1	0.4	0.4		4.2%	4.4%	
2378-TCDF	0.784	3.136	LT	EMPC	0.4			1	0.4			4.2%		
OCDD	0.205	0.822	18.6	B	18.6	18.6	9.3	0	0	0	0	0%	0%	0%
OCDF	0.119	0.477	1.1	B	1.1	1.1	0.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189				NC, J				0.00001						
PCB 156	2.360	9.440	289.2		289.2	289.2	289.2	0.0001	0.0	0.0	0.0	0.3%	0.3%	0.3%
PCB 157	2.400	9.600	128.7		128.7	128.7	128.7	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.577	2.308	270.9		270.9	270.9	270.9	0.0001	0.0	0.0	0.0	0.3%	0.3%	0.3%
PCB 167	2.240	8.960	275.3		275.3	275.3	275.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.561	2.244	18.48		18.5	18.5	18.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.545	2.180	833		833	833	833	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.581	2.324	19.66		19.7	19.7	19.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.341	1.364	7.74		7.7	7.7	7.7	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.726	2.902	29.34		29.3	29.3	29.3	0.1	2.9	2.9	2.9	30.8%	32.2%	34.1%
PCB 77	0.765	3.061	40.63		40.6	40.6	40.6	0.05	2.0	2.0	2.0	21.4%	22.3%	23.6%
PCB 81	0.776	3.105	3.85		3.9	3.9	3.9	0.1	0.4	0.4	0.4	4.1%	4.3%	4.5%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		4.1	3.7	3.2
All PCBs		5.4	5.4	5.4
All PCDDs/PCDFs/PCBs		9.5	9.1	8.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG019
SAMPLE TYPE: American kestrel egg
LOCATION: Quality control sample, 0 pg/g PCB 126, vehicle blank

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.311	1.245	2.16	B	2.2	2.2	1.1	0.001	0.0	0.0	0.0	0.1%	0.1%	0.3%
1234678-HpCDF	0.168	0.672	0.326	B	0.3	0.3		0.01	0.0	0.0		0.1%	0.1%	
1234789-HpCDF	0.234	0.936	LT		0.1			0.01	0.0			0.0%		
123478-HxCDD	0.239	0.954	0.677	B	0.7	0.7		0.05	0.0	0.0		1.4%	1.7%	
123478-HxCDF	0.141	0.564	LT		0.1			0.1	0.0			0.4%		
123678-HxCDD	0.209	0.837	LT		0.1			0.01	0.0			0.0%		
123678-HxCDF	0.063	0.250	0.401	B	0.4	0.4	0.2	0.1	0.0	0.0	0.0	1.6%	1.9%	5.0%
123789-HxCDD	0.204	0.816	LT		0.1			0.1	0.0			0.4%		
123789-HxCDF	1.472	5.888	LT	EMPC	0.7			0.1	0.1			2.8%		
12378-PeCDD	0.314	1.257	0.993		1	1		1	1.0	1.0		40.0%	47.6%	
12378-PeCDF	0.211	0.844	LT		0.1			0.1	0.0			0.4%		
234678-HxCDF	0.539	2.156	LT	EMPC	0.3			0.1	0.0			1.2%		
23478-PeCDF	0.154	0.614	LT		0.1			1	0.1			4.0%		
2378-TCDD	0.284	1.136	LT		0.1			1	0.1			4.0%		
2378-TCDF	0.250	1.000	LT		0.1			1	0.1			4.0%		
OCDD	0.392	1.569	32.4		32.4	32.4	32.4	0	0	0	0	0%	0%	0%
OCDF	0.303	1.211	1.8	B	1.8	1.8	0.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189				NC, J				0.00001						
PCB 156	1.370	5.480	12.59	B	12.6	12.6	6.3	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 157	3.270	13.080	LT	EMPC	1.6			0.0001	0.0			0.0%		
PCB 105	0.675	2.700	35.9	B	35.9	35.9	18	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.5%
PCB 167	5.530	22.120	LT	EMPC	2.8			0.00001	0.0			0.0%		
PCB 114	3.040	12.160	LT	EMPC	1.5			0.0001	0.0			0.0%		
PCB 118	0.668	2.672	97.3	B	97.3	97.3	48.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 123	0.713	2.852	LT		0.4			0.00001	0.0			0.0%		
PCB 169	0.578	2.313	LT		0.3			0.001	0.0			0.0%		
PCB 126	0.443	1.773	2.089	B	2.1	2.1	1	0.1	0.2	0.2	0.1	8.4%	10.0%	25.0%
PCB 77	1.509	6.036	10.78	B	10.8	10.8	5.4	0.05	0.5	0.5	0.3	21.6%	25.7%	67.5%
PCB 81	1.500	6.000	2.218	B	2.2	2.2		0.1	0.2	0.2		8.8%	10.5%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.5	1.1	0.0
All PCBs		1.0	1.0	0.4
All PCDDs/PCDFs/PCBs		2.5	2.1	0.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG12SW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 12 SW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.209	0.834	7.91		7.9	7.9	7.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.857	3.428	LT	EMPC	0.4			0.01	0.0			0.0%		
1234789-HpCDF	0.553	2.213	LT		0.3			0.01	0.0			0.0%		
123478-HxCDD	0.235	0.939	2.94		2.9	2.9	2.9	0.05	0.1	0.1	0.1	1.0%	1.0%	1.2%
123478-HxCDF	0.189	0.758	1.18		1.2	1.2	1.2	0.1	0.1	0.1	0.1	0.8%	0.8%	1.0%
123678-HxCDD	0.199	0.795	6.58		6.6	6.6	6.6	0.01	0.1	0.1	0.1	0.5%	0.5%	0.6%
123678-HxCDF	1.348	5.392	LT	EMPC	0.7			0.1	0.1			0.5%		
123789-HxCDD	1.369	5.476	LT	EMPC	0.7			0.1	0.1			0.5%		
123789-HxCDF	0.184	0.736	0.808	B	0.8	0.8	0.4	0.1	0.1	0.1	0.0	0.5%	0.6%	0.3%
12378-PeCDD	0.246	0.986	4.25		4.3	4.3	4.3	1	4.3	4.3	4.3	29.5%	29.9%	35.8%
12378-PeCDF	0.159	0.634	0.497		0.5	0.5		0.1	0.1	0.1		0.3%	0.3%	
234678-HxCDF	0.194	0.774	1.46	B	1.5	1.5	0.7	0.1	0.2	0.2	0.1	1.0%	1.0%	0.6%
23478-PeCDF	0.121	0.484	1.18		1.2	1.2	1.2	1	1.2	1.2	1.2	8.2%	8.3%	10.0%
2378-TCDD	0.348	1.393	0.719		0.7	0.7		1	0.7	0.7		4.8%	4.9%	
2378-TCDF	0.224	0.895	0.779	U	0.8	0.8		1	0.8	0.8		5.5%	5.6%	
OCDD	0.411	1.643	32.7		32.7	32.7	32.7	0	0	0	0	0%	0%	0%
OCDF	0.391	1.563	0.988	B	1	1		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189				NC, J				0.00001						
PCB 156	2.070	8.280	520.3		520.3	520.3	520.3	0.0001	0.1	0.1	0.1	0.4%	0.4%	0.4%
PCB 157	2.100	8.400	148.6		148.6	148.6	148.6	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.398	1.592	649.8		649.8	649.8	649.8	0.0001	0.1	0.1	0.1	0.4%	0.5%	0.5%
PCB 167	1.960	7.840	332.3		332.3	332.3	332.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.387	1.548	48.59		48.6	48.6	48.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.361	1.444	1820		1820	1820	1820	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 123	0.385	1.540	52.11		52.1	52.1	52.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.523	2.090	7.36		7.4	7.4	7.4	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.580	2.322	37.91		37.9	37.9	37.9	0.1	3.8	3.8	3.8	26.0%	26.3%	31.6%
PCB 77	1.905	7.620	42.73		42.7	42.7	42.7	0.05	2.1	2.1	2.1	14.6%	14.8%	17.8%
PCB 81	1.847	7.388	6.911		6.9	6.9		0.1	0.7	0.7		4.7%	4.8%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		7.8	7.6	5.9
All PCBs		6.8	6.8	6.1
All PCDDs/PCDFs/PCBs		14.6	14.4	12.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG04CC
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Cherry Creek Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.572	2.288	1.86		1.9	1.9		0.001	0.0	0.0		0.0%	0.0%	
1234678-HpCDF	0.782	3.128	10.6		10.6	10.6	10.6	0.01	0.1	0.1	0.1	0.6%	0.6%	0.9%
1234789-HpCDF	1.470	5.880	6.92		6.9	6.9	6.9	0.01	0.1	0.1	0.1	0.4%	0.4%	0.6%
123478-HxCDD	0.636	2.544	0.902		0.9	0.9		0.05	0.0	0.0		0.2%	0.3%	
123478-HxCDF	1.310	5.240	4.1		4.1	4.1		0.1	0.4	0.4		2.2%	2.4%	
123678-HxCDD	0.554	2.216	0.751		0.8	0.8		0.01	0.0	0.0		0.0%	0.0%	
123678-HxCDF	1.460	5.840	4.57		4.6	4.6		0.1	0.5	0.5		2.5%	2.7%	
123789-HxCDD	0.547	2.188	LT		0.3			0.1	0.0			0.2%		
123789-HxCDF	1.840	7.360	3.76		3.8	3.8		0.1	0.4	0.4		2.0%	2.3%	
12378-PeCDD	1.490	5.960	LT	EMPC	0.7			1	0.7			3.8%		
12378-PeCDF	2.230	8.920	LT	EMPC	1.1			0.1	0.1			0.6%		
234678-HxCDF	5.480	21.920	LT	EMPC	2.7			0.1	0.3			1.5%		
23478-PeCDF	1.390	5.560	2.71		2.7	2.7		1	2.7	2.7		14.5%	16.1%	
2378-TCDD	0.302	1.208	0.742		0.7	0.7		1	0.7	0.7		3.8%	4.2%	
2378-TCDF	1.320	5.280	LT	EMPC	0.7			1	0.7			3.8%		
OCDD	0.580	2.320	7.02	B	7	7	3.5	0	0	0	0	0%	0%	0%
OCDF	0.937	3.748	26.6		26.6	26.6	26.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	3.120	12.480	54.2	J	54.2	54.2	27.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.460	5.840	288		288	288	288	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 157	1.500	6.000	74.1		74.1	74.1	74.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 105	0.316	1.264	471		471	471	471	0.0001	0.0	0.0	0.0	0.3%	0.3%	0.4%
PCB 167	1.380	5.520	218		218	218	218	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.307	1.228	36.4		36.4	36.4	36.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.300	1.200	1370		1370	1370	1370	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.321	1.284	36.8		36.8	36.8	36.8	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.702	2.809	12.35		12.4	12.4	12.4	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.668	2.674	53.14		53.1	53.1	53.1	0.1	5.3	5.3	5.3	28.5%	31.6%	43.9%
PCB 77	2.200	8.800	104.2		104.2	104.2	104.2	0.05	5.2	5.2	5.2	28.0%	31.0%	43.1%
PCB 81	2.413	9.652	12.48		12.5	12.5	12.5	0.1	1.3	1.3	1.3	6.7%	7.4%	10.3%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		6.7	4.9	0.2
All PCBs		11.9	11.9	11.9
All PCDDs/PCDFs/PCBs		18.6	16.8	12.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG05NE
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 5 NE

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.621	2.484	10.7		10.7	10.7	10.7	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	1.380	5.520	9.25		9.3	9.3	9.3	0.01	0.1	0.1	0.1	0.6%	0.6%	0.8%
1234789-HpCDF	3.120	12.480	LT	EMPC	1.6			0.01	0.0			0.1%		
123478-HxCDD	0.268	1.072	2.48		2.5	2.5	2.5	0.05	0.1	0.1	0.1	0.8%	0.8%	1.0%
123478-HxCDF	0.468	1.872	2.61		2.6	2.6	2.6	0.1	0.3	0.3	0.3	1.7%	1.8%	2.1%
123678-HxCDD	0.231	0.924	3.04		3	3	3	0.01	0.0	0.0	0.0	0.2%	0.2%	0.2%
123678-HxCDF	0.667	2.668	3.91		3.9	3.9	3.9	0.1	0.4	0.4	0.4	2.6%	2.6%	3.2%
123789-HxCDD	0.230	0.920	1.71		1.7	1.7	1.7	0.1	0.2	0.2	0.2	1.1%	1.1%	1.4%
123789-HxCDF	0.604	2.416	1.97		2	2		0.1	0.2	0.2		1.3%	1.4%	
12378-PeCDD	0.489	1.956	4.39		4.4	4.4	4.4	1	4.4	4.4	4.4	29.5%	29.7%	36.4%
12378-PeCDF	1.060	4.240	LT		0.5			0.1	0.1			0.3%		
234678-HxCDF	0.521	2.084	2.59		2.6	2.6	2.6	0.1	0.3	0.3	0.3	1.7%	1.8%	2.1%
23478-PeCDF	0.924	3.696	1.54		1.5	1.5		1	1.5	1.5		10.1%	10.1%	
2378-TCDD	0.195	0.780	1.43		1.4	1.4	1.4	1	1.4	1.4	1.4	9.4%	9.5%	11.6%
2378-TCDF	0.447	1.788	0.549	B	0.5	0.5		1	0.5	0.5		3.4%	3.4%	
OCDD	0.635	2.540	21.1		21.1	21.1	21.1	0	0	0	0	0%	0%	0%
OCDF	0.754	3.016	9.59		9.6	9.6	9.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	21.100	84.400	74.6	J	74.6	74.6		0.00001	0.0	0.0		0.0%	0.0%	
PCB 156	2.630	10.520	497		497	497	497	0.0001	0.0	0.0	0.0	0.3%	0.3%	0.4%
PCB 157	2.700	10.800	148		148	148	148	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.395	1.580	470		470	470	470	0.0001	0.0	0.0	0.0	0.3%	0.3%	0.4%
PCB 167	2.490	9.960	437		437	437	437	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.384	1.536	29.8		29.8	29.8	29.8	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.379	1.516	1450		1450	1450	1450	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.405	1.620	35.3		35.3	35.3	35.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.663	2.650	4.862		4.9	4.9	4.9	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.482	1.928	30.72		30.7	30.7	30.7	0.1	3.1	3.1	3.1	20.6%	20.7%	25.4%
PCB 77	1.826	7.304	36.6		36.6	36.6	36.6	0.05	1.8	1.8	1.8	12.3%	12.4%	15.1%
PCB 81	1.616	6.464	4.284	B	4.3	4.3		0.1	0.4	0.4		2.9%	2.9%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		9.4	9.3	7.1
All PCBs		5.5	5.5	5.0
All PCDDs/PCDFs/PCBs		14.9	14.8	12.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG023
SAMPLE TYPE: American kestrel egg
LOCATION: Quality control sample, 11.9 pg/g PCB 126

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	3.920	15.680	LT	J	2			0.001	0.0			0.0%		
1234678-HpCDF	3.130	12.520	8.85	J	8.9	8.9		0.01	0.1	0.1		0.7%	2.6%	
1234789-HpCDF	6.230	24.920	6.82	J	6.8	6.8		0.01	0.1	0.1		0.5%	2.0%	
123478-HxCDD	3.130	12.520	LT	J	1.6			0.05	0.1			0.6%		
123478-HxCDF	4.380	17.520	LT	J	2.2			0.1	0.2			1.8%		
123678-HxCDD	2.790	11.160	LT	J	1.4			0.01	0.0			0.1%		
123678-HxCDF	1.590	6.360	3.73	J	3.7	3.7		0.1	0.4	0.4		3.0%	10.9%	
123789-HxCDD	2.730	10.920	LT	J	1.4			0.1	0.1			1.1%		
123789-HxCDF	3.970	15.880	LT	EMPC, J	2			0.1	0.2			1.6%		
12378-PeCDD	4.060	16.240	LT	J	2			1	2.0			16.0%		
12378-PeCDF	6.710	26.840	LT	J	3.4			0.1	0.3			2.7%		
234678-HxCDF	4.760	19.040	5.72	J	5.7	5.7		0.1	0.6	0.6		4.6%	16.8%	
23478-PeCDF	5.740	22.960	LT	J	2.9			1	2.9			23.2%		
2378-TCDD	2.900	11.600	LT	J	1.5			1	1.5			12.0%		
2378-TCDF	2.900	11.600	LT	J	1.5			1	1.5			12.0%		
OCDD	5.180	20.720	15.2	J	15.2	15.2		0	0	0		0%	0%	
OCDF	5.380	21.520	20.4	J	20.4	20.4		0.0001	0.0	0.0		0.0%	0.1%	
PCB 189	3.580	14.320	LT		1.8			0.00001	0.0			0.0%		
PCB 156	2.300	9.200	16.7	B	16.7	16.7	8.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	4.560	18.240	LT	EMPC	2.3			0.0001	0.0			0.0%		
PCB 105	0.619	2.476	67.7	B	67.7	67.7	33.9	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 167	2.180	8.720	8.8		8.8	8.8	8.8	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.602	2.408	5.22	B	5.2	5.2	2.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.598	2.392	184	B	184	184	92	0.00001	0.0	0.0	0.0	0.0%	0.1%	0.0%
PCB 123	2.660	10.640	LT	EMPC	1.3			0.00001	0.0			0.0%		
PCB 169	1.050	4.200	LT		0.5			0.001	0.0			0.0%		
PCB 126	0.812	3.247	15.74		15.7	15.7	15.7	0.1	1.6	1.6	1.6	12.6%	46.2%	78.5%
PCB 77	3.152	12.608	15.23	B	15.2	15.2	7.6	0.05	0.8	0.8	0.4	6.1%	22.4%	19.0%
PCB 81	2.905	11.620	LT		1.5			0.1	0.2			1.2%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		10.0	1.1	0.0
All PCBs		2.5	2.3	2.0
All PCDDs/PCDFs/PCBs		12.5	3.4	2.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG20NE
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 20 NE

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.099	0.395	40.6		40.6	40.6	40.6	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	3.520	14.080	15.5		15.5	15.5	15.5	0.01	0.2	0.2	0.2	0.4%	0.4%	0.5%
1234789-HpCDF	6.250	25.000	LT		3.1			0.01	0.0			0.1%		
123478-HxCDD	1.280	5.120	4.99		5	5		0.05	0.3	0.3		0.7%	0.7%	
123478-HxCDF	0.943	3.772	7.38		7.4	7.4	7.4	0.1	0.7	0.7	0.7	2.0%	2.0%	2.3%
123678-HxCDD	1.060	4.240	24.2		24.2	24.2	24.2	0.01	0.2	0.2	0.2	0.7%	0.7%	0.7%
123678-HxCDF	1.850	7.400	10.5	J	10.5	10.5	5.3	0.1	1.1	1.1	0.5	2.8%	2.9%	1.6%
123789-HxCDD	1.070	4.280	LT		0.5			0.1	0.1			0.1%		
123789-HxCDF	2.630	10.520	LT	EMPC	1.3			0.1	0.1			0.4%		
12378-PeCDD	0.547	2.188	5		5	5	5	1	5.0	5.0	5.0	13.6%	13.7%	15.4%
12378-PeCDF	1.500	6.000	LT		0.8			0.1	0.1			0.2%		
234678-HxCDF	2.780	11.120	LT	EMPC	1.4			0.1	0.1			0.4%		
23478-PeCDF	1.340	5.360	14.8		14.8	14.8	14.8	1	14.8	14.8	14.8	40.1%	40.5%	45.5%
2378-TCDD	0.537	2.148	1.43		1.4	1.4		1	1.4	1.4		3.8%	3.8%	
2378-TCDF	0.788	3.152	1.11		1.1	1.1		1	1.1	1.1		3.0%	3.0%	
OCDD	0.487	1.948	37.5		37.5	37.5	37.5	0	0	0	0	0%	0%	0%
OCDF	1.390	5.560	4.42		4.4	4.4		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	10.400	41.600	168	J	168	168	84	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	5.140	20.560	814		814	814	814	0.0001	0.1	0.1	0.1	0.2%	0.2%	0.3%
PCB 157	5.280	21.120	189		189	189	189	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	1.890	7.560	978		978	978	978	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 167	4.870	19.480	550		550	550	550	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	1.840	7.360	59.3		59.3	59.3	59.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	1.790	7.160	2820		2820	2820	2820	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	1.910	7.640	76.7		76.7	76.7	76.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.148	4.592	11.42		11.4	11.4	11.4	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	1.542	6.168	58.29		58.3	58.3	58.3	0.1	5.8	5.8	5.8	15.8%	16.0%	17.9%
PCB 77	5.545	22.180	98.83		98.8	98.8	98.8	0.05	4.9	4.9	4.9	13.4%	13.5%	15.2%
PCB 81	5.089	20.356	7.148		7.1	7.1		0.1	0.7	0.7		1.9%	1.9%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		25.2	24.8	21.5
All PCBs		11.7	11.7	11.0
All PCDDs/PCDFs/PCBs		36.9	36.5	32.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG8SW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 8 SW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.809	3.236	2.18		2.2	2.2		0.001	0.0	0.0		0.0%	0.0%	
1234678-HpCDF	5.890	23.560	5.47		5.5	5.5		0.01	0.1	0.1		0.8%	0.9%	
1234789-HpCDF	10.100	40.400	LT		5.1			0.01	0.1			0.8%		
123478-HxCDD	0.806	3.224	1.27		1.3	1.3		0.05	0.1	0.1		1.0%	1.1%	
123478-HxCDF	0.778	3.112	1.53		1.5	1.5		0.1	0.2	0.2		2.2%	2.5%	
123678-HxCDD	0.676	2.704	1.56		1.6	1.6		0.01	0.0	0.0		0.2%	0.3%	
123678-HxCDF	1.320	5.280	4.74		4.7	4.7		0.1	0.5	0.5		7.0%	8.0%	
123789-HxCDD	0.682	2.728	LT		0.3			0.1	0.0			0.4%		
123789-HxCDF	1.080	4.320	1.18	B	1.2	1.2		0.1	0.1	0.1		1.8%	2.0%	
12378-PeCDD	0.328	1.312	1.1		1.1	1.1		1	1.1	1.1		16.4%	18.6%	
12378-PeCDF	0.732	2.928	LT		0.4			0.1	0.0			0.6%		
234678-HxCDF	0.853	3.412	1.4		1.4	1.4		0.1	0.1	0.1		2.1%	2.4%	
23478-PeCDF	0.837	3.348	LT	EMPC	0.4			1	0.4			6.0%		
2378-TCDD	0.276	1.104	LT		0.1			1	0.1			1.5%		
2378-TCDF	0.313	1.252	LT		0.2			1	0.2			3.0%		
OCDD	0.209	0.836	8.16	B	8.2	8.2	4.1	0	0	0	0	0%	0%	0%
OCDF	0.998	3.992	3.71		3.7	3.7		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	10.600	42.400	118	J	118	118	59	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	3.670	14.680	688		688	688	688	0.0001	0.1	0.1	0.1	1.0%	1.2%	2.3%
PCB 157	3.770	15.080	222		222	222	222	0.0001	0.0	0.0	0.0	0.3%	0.4%	0.7%
PCB 105	0.561	2.244	533		533	533	533	0.0001	0.1	0.1	0.1	0.8%	0.9%	1.8%
PCB 167	3.470	13.880	414		414	414	414	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 114	0.546	2.184	24.8		24.8	24.8	24.8	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 118	0.547	2.188	1240		1240	1240	1240	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.4%
PCB 123	0.584	2.336	26.1		26.1	26.1	26.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.624	2.498	3.938		3.9	3.9	3.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.586	2.344	22.43		22.4	22.4	22.4	0.1	2.2	2.2	2.2	33.4%	38.0%	74.7%
PCB 77	1.043	4.172	22.27	B	22.3	22.3	11.1	0.05	1.1	1.1	0.6	16.6%	18.9%	18.5%
PCB 81	0.968	3.870	2.888	B	2.9	2.9		0.1	0.3	0.3		4.3%	4.9%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.9	2.1	0.0
All PCBs		3.8	3.8	3.0
All PCDDs/PCDFs/PCBs		6.7	5.9	3.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG026
SAMPLE TYPE: American kestrel egg
LOCATION: Quality control sample, 11.1 pg/g PCB 126

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	2.510	10.040	LT	EMPC	1.3			0.001	0.0			0.0%		
1234678-HpCDF	0.484	1.936	6.38		6.4	6.4	6.4	0.01	0.1	0.1	0.1	0.6%	0.6%	2.1%
1234789-HpCDF	0.903	3.612	3.06		3.1	3.1		0.01	0.0	0.0		0.3%	0.3%	
123478-HxCDD	1.050	4.200	LT		0.5			0.05	0.0			0.2%		
123478-HxCDF	0.826	3.304	6.42		6.4	6.4	6.4	0.1	0.6	0.6	0.6	5.6%	6.4%	20.6%
123678-HxCDD	0.937	3.748	LT		0.5			0.01	0.0			0.0%		
123678-HxCDF	1.260	5.040	5.7		5.7	5.7	5.7	0.1	0.6	0.6	0.6	5.0%	5.7%	18.4%
123789-HxCDD	0.919	3.676	LT		0.5			0.1	0.1			0.4%		
123789-HxCDF	1.040	4.160	3.98		4	4		0.1	0.4	0.4		3.5%	4.0%	
12378-PeCDD	0.360	1.440	LT		0.2			1	0.2			1.8%		
12378-PeCDF	2.570	10.280	5.18		5.2	5.2		0.1	0.5	0.5		4.6%	5.2%	
234678-HxCDF	0.930	3.720	5.18		5.2	5.2	5.2	0.1	0.5	0.5	0.5	4.6%	5.2%	16.8%
23478-PeCDF	2.320	9.280	5.11		5.1	5.1		1	5.1	5.1		44.7%	51.0%	
2378-TCDD	0.394	1.576	LT		0.2			1	0.2			1.8%		
2378-TCDF	1.370	5.480	LT		0.7			1	0.7			6.1%		
OCDD	0.679	2.716	10.5	B	10.5	10.5	5.3	0	0	0	0	0%	0%	0%
OCDF	0.653	2.612	4.4		4.4	4.4	4.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	4.530	18.120	LT	J	2.3			0.00001	0.0			0.0%		
PCB 156	2.200	8.800	14.3	B	14.3	14.3	7.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	2.260	9.040	LT		1.1			0.0001	0.0			0.0%		
PCB 105	0.723	2.892	57	B	57	57	28.5	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 167	2.080	8.320	6.63	B	6.6	6.6		0.00001	0.0	0.0		0.0%	0.0%	
PCB 114	1.890	7.560	LT	EMPC	0.9			0.0001	0.0			0.0%		
PCB 118	0.669	2.676	145	B	145	145	72.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	0.715	2.860	9.24		9.2	9.2	9.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.146	4.584	LT		0.6			0.001	0.0			0.0%		
PCB 126	1.721	6.884	12.64		12.6	12.6	12.6	0.1	1.3	1.3	1.3	11.1%	12.6%	40.6%
PCB 77	5.196	20.784	17.79	B	17.8	17.8		0.05	0.9	0.9		7.8%	8.9%	
PCB 81	4.202	16.808	LT		2.1			0.1	0.2			1.8%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		9.0	7.8	1.8
All PCBs		2.4	2.2	1.3
All PCDDs/PCDFs/PCBs		11.4	10.0	3.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG2NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 2 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.388	1.552	29.2		29.2	29.2	29.2	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	1.750	7.000	170		170	170	170	0.01	1.7	1.7	1.7	4.5%	4.5%	4.8%
1234789-HpCDF	3.460	13.840	1.41		1.4	1.4		0.01	0.0	0.0		0.0%	0.0%	
123478-HxCDD	0.602	2.408	10.5		10.5	10.5	10.5	0.05	0.5	0.5	0.5	1.4%	1.4%	1.5%
123478-HxCDF	1.250	5.000	5.27		5.3	5.3	5.3	0.1	0.5	0.5	0.5	1.4%	1.4%	1.5%
123678-HxCDD	0.541	2.164	17.8		17.8	17.8	17.8	0.01	0.2	0.2	0.2	0.5%	0.5%	0.5%
123678-HxCDF	1.370	5.480	54.8		54.8	54.8	54.8	0.1	5.5	5.5	5.5	14.5%	14.5%	15.4%
123789-HxCDD	0.528	2.112	5.65		5.7	5.7	5.7	0.1	0.6	0.6	0.6	1.5%	1.5%	1.6%
123789-HxCDF	1.620	6.480	1.08	B	1.1	1.1		0.1	0.1	0.1		0.3%	0.3%	
12378-PeCDD	0.455	1.820	12.4		12.4	12.4	12.4	1	12.4	12.4	12.4	32.7%	32.7%	34.8%
12378-PeCDF	0.812	3.248	1.73		1.7	1.7		0.1	0.2	0.2		0.4%	0.4%	
234678-HxCDF	1.390	5.560	3.7		3.7	3.7		0.1	0.4	0.4		1.0%	1.0%	
23478-PeCDF	0.737	2.948	3.66		3.7	3.7	3.7	1	3.7	3.7	3.7	9.8%	9.8%	10.4%
2378-TCDD	0.258	1.032	2.21		2.2	2.2	2.2	1	2.2	2.2	2.2	5.8%	5.8%	6.2%
2378-TCDF	0.401	1.604	1.05		1.1	1.1		1	1.1	1.1		2.9%	2.9%	
OCDD	0.122	0.488	37.5		37.5	37.5	37.5	0	0	0	0	0%	0%	0%
OCDF	0.775	3.100	5.25		5.3	5.3	5.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	4.500	18.000	135	J	135	135	67.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	2.170	8.680	933		933	933	933	0.0001	0.1	0.1	0.1	0.2%	0.2%	0.3%
PCB 157	2.230	8.920	239		239	239	239	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.383	1.532	1030		1030	1030	1030	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 167	2.050	8.200	494		494	494	494	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.373	1.492	51.3		51.3	51.3	51.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.343	1.372	2820		2820	2820	2820	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.366	1.464	41.6		41.6	41.6	41.6	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.670	2.680	7.886		7.9	7.9	7.9	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.466	1.862	53.3		53.3	53.3	53.3	0.1	5.3	5.3	5.3	14.1%	14.1%	15.0%
PCB 77	2.072	8.288	53.51		53.5	53.5	53.5	0.05	2.7	2.7	2.7	7.1%	7.1%	7.5%
PCB 81	1.934	7.736	4.918	B	4.9	4.9		0.1	0.5	0.5		1.3%	1.3%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		29.1	29.1	27.3
All PCBs		8.8	8.8	8.3
All PCDDs/PCDFs/PCBs		37.9	37.9	35.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs, are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG01BL
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Barr Lake

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.334	1.336	6.6		6.6	6.6	6.6	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.860	7.440	11.2		11.2	11.2	11.2	0.01	0.1	0.1	0.1	0.3%	0.4%	0.4%
1234789-HpCDF	3.810	15.240	LT		1.9			0.01	0.0			0.1%		
123478-HxCDD	0.606	2.424	1.77		1.8	1.8		0.05	0.1	0.1		0.3%	0.3%	
123478-HxCDF	1.160	4.640	2.94		2.9	2.9		0.1	0.3	0.3		0.9%	0.9%	
123678-HxCDD	0.506	2.024	3.61		3.6	3.6	3.6	0.01	0.0	0.0	0.0	0.1%	0.1%	0.1%
123678-HxCDF	2.250	9.000	5.4		5.4	5.4		0.1	0.5	0.5		1.7%	1.7%	
123789-HxCDD	0.512	2.048	0.991		1	1		0.1	0.1	0.1		0.3%	0.3%	
123789-HxCDF	1.730	6.920	2.01		2	2		0.1	0.2	0.2		0.6%	0.6%	
12378-PeCDD	0.454	1.816	2.74		2.7	2.7	2.7	1	2.7	2.7	2.7	8.4%	8.5%	10.2%
12378-PeCDF	0.623	2.492	1.22		1.2	1.2		0.1	0.1	0.1		0.4%	0.4%	
234678-HxCDF	1.410	5.640	2.19		2.2	2.2		0.1	0.2	0.2		0.7%	0.7%	
23478-PeCDF	1.260	5.040	2.16		2.2	2.2		1	2.2	2.2		6.8%	6.9%	
2378-TCDD	0.812	3.248	LT	EMPC	0.4	0		1	0.4	0.0		1.2%	0.0%	
2378-TCDF	0.438	1.752	1.46		1.5	1.5		1	1.5	1.5		4.7%	4.7%	
OCDD	0.502	2.008	10	B	10	10	5	0	0	0	0	0%	0%	0%
OCDF	0.794	3.176	6.07		6.1	6.1	6.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189				NC, J				0.00001						
PCB 156	3.820	15.280	2680		2680	2680	2680	0.0001	0.3	0.3	0.3	0.8%	0.8%	1.0%
PCB 157	3.920	15.680	873		873	873	873	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 105	0.787	3.148	2820		2820	2820	2820	0.0001	0.3	0.3	0.3	0.9%	0.9%	1.1%
PCB 167	3.620	14.480	2550	C, J	2550	2550	1275	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.0%
PCB 114	0.767	3.068	161		161	161	161	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	0.714	2.856	7560	C, J	7560	7560	3780	0.00001	0.1	0.1	0.0	0.2%	0.2%	0.1%
PCB 123	0.764	3.056	248		248	248	248	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.538	2.151	13.35		13.4	13.4	13.4	0.001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 126	0.358	1.431	88.46		88.5	88.5	88.5	0.1	8.9	8.9	8.9	27.5%	27.8%	33.4%
PCB 77	2.429	9.716	238		238	238	238	0.05	11.9	11.9	11.9	37.0%	37.4%	44.9%
PCB 81	2.072	8.288	21.54		21.5	21.5	21.5	0.1	2.2	2.2	2.2	6.7%	6.8%	8.1%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		8.5	8.1	2.9
All PCBs		23.7	23.7	23.6
All PCDDs/PCDFs/PCBs		32.2	31.8	26.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG34NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 34 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.775	3.100	1.92		1.9	1.9		0.001	0.0	0.0		0.0%	0.0%	
1234678-HpCDF	0.996	3.984	4.54		4.5	4.5	4.5	0.01	0.0	0.0	0.0	0.6%	0.7%	0.9%
1234789-HpCDF	1.940	7.760	LT		1			0.01	0.0			0.1%		
123478-HxCDD	0.425	1.700	1.01		1	1		0.05	0.1	0.1		0.7%	0.8%	
123478-HxCDF	0.743	2.972	0.937		0.9	0.9		0.1	0.1	0.1		1.3%	1.4%	
123678-HxCDD	0.346	1.384	1.14		1.1	1.1		0.01	0.0	0.0		0.2%	0.2%	
123678-HxCDF	0.812	3.248	4.1		4.1	4.1	4.1	0.1	0.4	0.4	0.4	5.8%	6.4%	8.2%
123789-HxCDD	0.354	1.416	LT		0.2			0.1	0.0			0.3%		
123789-HxCDF	0.985	3.940	1.25	B	1.3	1.3		0.1	0.1	0.1		1.8%	2.0%	
12378-PeCDD	0.316	1.264	1.42		1.4	1.4	1.4	1	1.4	1.4	1.4	19.7%	21.9%	28.0%
12378-PeCDF	0.243	0.972	0.461	B	0.5	0.5		0.1	0.1	0.1		0.7%	0.8%	
234678-HxCDF	1.170	4.680	LT	EMPC	0.6			0.1	0.1			0.8%		
23478-PeCDF	0.779	3.116	LT	EMPC	0.4			1	0.4			5.6%		
2378-TCDD	0.410	1.640	LT	EMPC	0.2			1	0.2			2.8%		
2378-TCDF	0.299	1.196	0.328	B	0.3	0.3		1	0.3	0.3		4.2%	4.7%	
OCDD	0.353	1.412	5.52	B	5.5	5.5	2.8	0	0	0	0	0%	0%	0%
OCDF	0.475	1.900	3.29	B	3.3	3.3	1.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	74.500	298.000	LT	EMPC, J	37.3			0.00001	0.0			0.0%		
PCB 156	4.880	19.520	381		381	381	381	0.0001	0.0	0.0	0.0	0.5%	0.6%	0.8%
PCB 157	5.010	20.040	127		127	127	127	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.3%
PCB 105	0.822	3.288	352		352	352	352	0.0001	0.0	0.0	0.0	0.5%	0.6%	0.7%
PCB 167	4.620	18.480	402		402	402	402	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 114	0.800	3.200	25.5		25.5	25.5	25.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 118	0.749	2.996	1010		1010	1010	1010	0.00001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 123	0.800	3.200	27.8		27.8	27.8	27.8	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.344	1.375	7.825		7.8	7.8	7.8	0.001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 126	0.345	1.381	24.43		24.4	24.4	24.4	0.1	2.4	2.4	2.4	34.4%	38.1%	48.8%
PCB 77	1.614	6.456	22.22	B	22.2	22.2	11.1	0.05	1.1	1.1	0.6	15.6%	17.3%	11.1%
PCB 81	1.507	6.028	2.712	B	2.7	2.7		0.1	0.3	0.3		3.8%	4.2%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		3.2	2.5	1.9
All PCBs		3.9	3.9	3.1
All PCDDs/PCDFs/PCBs		7.1	6.4	5.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG8NE
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 8 NE

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.493	1.972	123		123	123	123	0.001	0.1	0.1	0.1	0.3%	0.3%	0.4%
1234678-HpCDF	17.400	69.600	28.1		28.1	28.1		0.01	0.3	0.3		1.0%	1.0%	
1234789-HpCDF	30.400	121.600	LT		15.2			0.01	0.2			0.4%		
123478-HxCDD	0.237	0.948	15.6		15.6	15.6	15.6	0.05	0.8	0.8	0.8	2.2%	2.2%	2.5%
123478-HxCDF	0.577	2.308	5.27		5.3	5.3	5.3	0.1	0.5	0.5	0.5	1.5%	1.5%	1.7%
123678-HxCDD	0.196	0.784	42		42	42	42	0.01	0.4	0.4	0.4	1.2%	1.2%	1.3%
123678-HxCDF	0.898	3.592	7.3		7.3	7.3	7.3	0.1	0.7	0.7	0.7	2.0%	2.1%	2.3%
123789-HxCDD	0.199	0.796	12.6		12.6	12.6	12.6	0.1	1.3	1.3	1.3	3.5%	3.5%	4.0%
123789-HxCDF	0.741	2.964	1.11	B	1.1	1.1		0.1	0.1	0.1		0.3%	0.3%	
12378-PeCDD	0.310	1.240	19.5		19.5	19.5	19.5	1	19.5	19.5	19.5	54.6%	54.9%	61.9%
12378-PeCDF	0.820	3.280	1.55		1.6	1.6		0.1	0.2	0.2		0.4%	0.5%	
234678-HxCDF	0.644	2.576	3.58		3.6	3.6	3.6	0.1	0.4	0.4	0.4	1.0%	1.0%	1.1%
23478-PeCDF	0.723	2.892	2.7		2.7	2.7		1	2.7	2.7		7.6%	7.6%	
2378-TCDD	0.122	0.488	3.34		3.3	3.3	3.3	1	3.3	3.3	3.3	9.2%	9.3%	10.5%
2378-TCDF	0.482	1.928	0.624	B	0.6	0.6		1	0.6	0.6		1.7%	1.7%	
OCDD	0.317	1.268	254		254	254	254	0	0	0	0	0%	0%	0%
OCDF	0.876	3.504	4.5		4.5	4.5	4.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	10.900	43.600	104	J	104	104	52	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	5.440	21.760	544		544	544	544	0.0001	0.1	0.1	0.1	0.2%	0.2%	0.2%
PCB 157	5.590	22.360	170		170	170	170	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 105	1.060	4.240	509		509	509	509	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.2%
PCB 167	5.150	20.600	379		379	379	379	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	1.030	4.120	LT		0.5			0.0001	0.0			0.0%		
PCB 118	0.875	3.500	1340	J	1340	1340	670	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	0.936	3.744	21.8	J	21.8	21.8	10.9	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.869	3.476	5.345		5.3	5.3	5.3	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.649	2.596	31.46		31.5	31.5	31.5	0.1	3.2	3.2	3.2	8.8%	8.9%	10.0%
PCB 77	1.560	6.240	25.18		25.2	25.2	25.2	0.05	1.3	1.3	1.3	3.5%	3.5%	4.0%
PCB 81	2.738	10.952	LT	EMPC	1.4			0.1	0.1			0.4%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		31.0	30.9	27.0
All PCBs		4.7	4.6	4.5
All PCDDs/PCDFs/PCBs		35.7	35.5	31.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG01AR
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Aurora Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.506	2.024	11		11	11	11	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.170	4.680	9.43		9.4	9.4	9.4	0.01	0.1	0.1	0.1	0.2%	0.2%	0.3%
1234789-HpCDF	2.100	8.400	2.84		2.8	2.8		0.01	0.0	0.0		0.1%	0.1%	
123478-HxCDD	0.521	2.084	2.94		2.9	2.9	2.9	0.05	0.1	0.1	0.1	0.4%	0.4%	0.4%
123478-HxCDF	3.610	14.440	8.29		8.3	8.3		0.1	0.8	0.8		2.0%	2.0%	
123678-HxCDD	0.444	1.776	4.94		4.9	4.9	4.9	0.01	0.0	0.0	0.0	0.1%	0.1%	0.1%
123678-HxCDF	6.630	26.520	8.9		8.9	8.9		0.1	0.9	0.9		2.1%	2.2%	
123789-HxCDD	0.446	1.784	2.5		2.5	2.5	2.5	0.1	0.3	0.3	0.3	0.6%	0.6%	0.7%
123789-HxCDF	5.010	20.040	4.4		4.4	4.4		0.1	0.4	0.4		1.1%	1.1%	
12378-PeCDD	0.331	1.324	6.26		6.3	6.3	6.3	1	6.3	6.3	6.3	15.2%	15.4%	17.1%
12378-PeCDF	1.790	7.160	8.11		8.1	8.1	8.1	0.1	0.8	0.8	0.8	2.0%	2.0%	2.2%
234678-HxCDF	4.120	16.480	8.45		8.5	8.5		0.1	0.9	0.9		2.1%	2.1%	
23478-PeCDF	1.620	6.480	14.3		14.3	14.3	14.3	1	14.3	14.3	14.3	34.5%	35.0%	38.8%
2378-TCDD	1.200	4.800	LT	EMPC	0.6			1	0.6			1.4%		
2378-TCDF	0.910	3.640	5.92		5.9	5.9	5.9	1	5.9	5.9	5.9	14.3%	14.5%	16.0%
OCDD	0.237	0.948	9.58	B	9.6	9.6	4.8	0	0	0	0	0%	0%	0%
OCDF	0.534	2.136	5.29		5.3	5.3	5.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	58.100	232.400	383	J	383	383	191.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	5.120	20.480	1340		1340	1340	1340	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.4%
PCB 157	5.260	21.040	409		409	409	409	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	3.580	14.320	1590		1590	1590	1590	0.0001	0.2	0.2	0.2	0.4%	0.4%	0.4%
PCB 167	4.850	19.400	1070		1070	1070	1070	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	3.480	13.920	107		107	107	107	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	3.320	13.280	4920	C, J	4920	4920	2460	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	3.550	14.200	115		115	115	115	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.374	5.496	19.55		19.6	19.6	19.6	0.001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 126	1.075	4.300	63.38		63.4	63.4	63.4	0.1	6.3	6.3	6.3	15.3%	15.5%	17.2%
PCB 77	2.953	11.812	44.57		44.6	44.6	44.6	0.05	2.2	2.2	2.2	5.4%	5.5%	6.0%
PCB 81	2.784	11.136	9.285		9.3	9.3		0.1	0.9	0.9		2.2%	2.3%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		31.5	30.9	27.9
All PCBs		9.9	9.9	9.0
All PCDDs/PCDFs/PCBs		41.4	40.8	36.9

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG05ACP
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Adams County Fairground

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.845	7.380	12.28		12.3	12.3	12.3	0.001	0.0	0.0	0.0	0.1%	0.1%	0.2%
1234678-HpCDF	1.378	5.512	LT	EMPC	0.7			0.01	0.0			0.1%		
1234789-HpCDF	1.996	7.984	LT		1			0.01	0.0			0.1%		
123478-HxCDD	2.132	8.528	LT	EMPC	1.1			0.05	0.1			0.6%		
123478-HxCDF	0.938	3.750	LT		0.5			0.1	0.1			0.5%		
123678-HxCDD	0.927	3.708	5.033		5	5	5	0.01	0.1	0.1	0.1	0.5%	0.5%	0.7%
123678-HxCDF	0.819	3.277	1.252		1.3	1.3		0.1	0.1	0.1		1.3%	1.4%	
123789-HxCDD	0.902	3.606	1.007	B	1	1		0.1	0.1	0.1		1.0%	1.1%	
123789-HxCDF	1.548	6.192	LT		0.8			0.1	0.1			0.8%		
12378-PeCDD	0.080	0.320	2.563		2.6	2.6	2.6	1	2.6	2.6	2.6	26.5%	28.3%	34.2%
12378-PeCDF	0.482	1.928	LT		0.2			0.1	0.0			0.2%		
234678-HxCDF	4.358	17.432	LT	D	2.2			0.1	0.2			2.2%		
23478-PeCDF	0.099	0.396	0.722	B	0.7	0.7	0.4	1	0.7	0.7	0.4	7.1%	7.6%	5.3%
2378-TCDD	0.445	1.780	LT		0.2			1	0.2			2.0%		
2378-TCDF	0.249	0.995	0.676	U, B	0.7	0.7		1	0.7	0.7		7.1%	7.6%	
OCDD	2.552	10.208	50.65		50.7	50.7	50.7	0	0	0	0	0%	0%	0%
OCDF	2.618	10.472	LT		1.3			0.0001	0.0			0.0%		
PCB 189	117.000	468.000	LT	J	58.5			0.00001	0.0			0.0%		
PCB 156	2.280	9.120	528		528	528	528	0.0001	0.1	0.1	0.1	0.5%	0.6%	0.7%
PCB 157	2.340	9.360	152		152	152	152	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 105	3.250	13.000	462		462	462	462	0.0001	0.0	0.0	0.0	0.5%	0.5%	0.6%
PCB 167	2.160	8.640	402		402	402	402	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 114	3.160	12.640	32.2		32.2	32.2	32.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	3.200	12.800	1460		1460	1460	1460	0.00001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 123	0.622	2.488	29.1		29.1	29.1	29.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.744	2.977	5.88		5.9	5.9	5.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.836	3.345	24.29		24.3	24.3	24.3	0.1	2.4	2.4	2.4	24.8%	26.4%	32.0%
PCB 77	1.711	6.844	38.78		38.8	38.8	38.8	0.05	1.9	1.9	1.9	19.8%	21.1%	25.5%
PCB 81	1.624	6.496	4.22	B	4.2	4.2		0.1	0.4	0.4		4.3%	4.6%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		4.9	4.3	3.1
All PCBs		4.9	4.9	4.5
All PCDDs/PCDFs/PCBs		9.8	9.2	7.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG07CC
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Cherry Creek Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	2.610	10.440	LT	EMPC	1.3			0.001	0.0			0.0%		
1234678-HpCDF	4.700	18.800	2.61		2.6	2.6		0.01	0.0	0.0		0.2%	0.1%	
1234789-HpCDF	8.980	35.920	LT		4.5			0.01	0.0			0.3%		
123478-HxCDD	1.410	5.640	1.75		1.8	1.8		0.05	0.1	0.1		0.6%	0.3%	
123478-HxCDF	0.603	2.412	LT		0.3			0.1	0.0			0.2%		
123678-HxCDD	1.270	5.080	2.59		2.6	2.6		0.01	0.0	0.0		0.2%	0.1%	
123678-HxCDF	1.030	4.120	2.19		2.2	2.2		0.1	0.2	0.2		1.4%	0.8%	
123789-HxCDD	1.240	4.960	LT		0.6			0.1	0.1			0.4%		
123789-HxCDF	0.834	3.336	1.28	B	1.3	1.3		0.1	0.1	0.1		0.8%	0.5%	
12378-PeCDD	2.980	11.920	LT	EMPC	1.5			1	1.5			9.8%		
12378-PeCDF	0.886	3.544	LT		0.4			0.1	0.0			0.3%		
234678-HxCDF	0.680	2.720	1.18	B	1.2	1.2		0.1	0.1	0.1		0.8%	0.4%	
23478-PeCDF	1.170	4.680	LT	EMPC	0.6			1	0.6			3.9%		
2378-TCDD	0.101	0.404	0.861		0.9	0.9	0.9	1	0.9	0.9	0.9	5.9%	3.2%	4.4%
2378-TCDF	0.494	1.976	0.713	B	0.7	0.7		1	0.7	0.7		4.6%	2.5%	
OCDD	0.335	1.340	24.6		24.6	24.6	24.6	0	0	0	0	0%	0%	0%
OCDF	0.780	3.120	LT		0.4			0.0001	0.0			0.0%		
PCB 189	9.830	39.320	141	J	141	141	70.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	6.150	24.600	754		754	754	754	0.0001	0.1	0.1	0.1	0.5%	0.3%	0.4%
PCB 157	6.310	25.240	185		185	185	185	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.927	3.708	971		971	971	971	0.0001	0.1	0.1	0.1	0.6%	0.3%	0.5%
PCB 167	5.820	23.280	482		482	482	482	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.903	3.612	66.3		66.3	66.3	66.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.859	3.436	2820	C, J	2820	2820	1410	0.00001	0.0	0.0	0.0	0.2%	0.1%	0.1%
PCB 123	0.918	3.672	52.2		52.2	52.2	52.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.320	5.280	6.953		7	7	7	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	1.392	5.568	55.66		55.7	55.7	55.7	0.1	5.6	5.6	5.6	36.4%	19.5%	27.0%
PCB 77	3.100	12.400	84.65		84.7	84.7	84.7	0.05	4.2	4.2	4.2	27.7%	14.9%	20.6%
PCB 81	2.427	9.708	7.226		7.2	7.2		0.1	0.7	0.7		4.7%	2.5%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		4.5	2.2	0.9
All PCBs		10.8	10.8	10.0
All PCDDs/PCDFs/PCBs		15.3	13.0	10.9

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG034
SAMPLE TYPE: American kestrel egg
LOCATION: Quality control sample, 131.6 pg/g PCB 126

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.211	0.844	2.61		2.6	2.6	2.6	0.001	0.0	0.0	0.0	0.1%	0.2%	0.0%
1234678-HpCDF	0.470	1.880	1.6	B	1.6	1.6		0.01	0.0	0.0		0.6%	1.3%	0.0%
1234789-HpCDF	0.909	3.636	LT		0.5			0.01	0.0			0.2%	0.0%	0.0%
123478-HxCDD	0.824	3.296	LT	EMPC	0.4			0.05	0.0			0.7%	0.0%	0.0%
123478-HxCDF	0.972	3.888	LT		0.5			0.1	0.1			1.7%	0.0%	0.0%
123678-HxCDD	0.173	0.692	LT		0.1			0.01	0.0			0.0%	0.0%	0.0%
123678-HxCDF	1.170	4.680	LT		0.6			0.1	0.1			2.1%	0.0%	0.0%
123789-HxCDD	0.176	0.704	LT		0.1			0.1	0.0			0.3%	0.0%	0.0%
123789-HxCDF	1.370	5.480	2.28		2.3	2.3		0.1	0.2	0.2		7.9%	19.2%	0.0%
12378-PeCDD	0.573	2.292	0.825	B	0.8	0.8		1	0.8	0.8		27.6%	66.7%	0.0%
12378-PeCDF	1.190	4.760	LT		0.6			0.1	0.1			2.1%	0.0%	0.0%
234678-HxCDF	1.010	4.040	1.14	B	1.1	1.1		0.1	0.1	0.1		3.8%	9.2%	0.0%
23478-PeCDF	1.060	4.240	LT		0.5			1	0.5			17.2%	0.0%	0.0%
2378-TCDD	0.726	2.904	LT		0.4			1	0.4			13.8%	0.0%	0.0%
2378-TCDF	1.120	4.480	LT		0.6			1	0.6			20.7%	0.0%	0.0%
OCDD	0.289	1.156	18.4		18.4	18.4	18.4	0	0	0	0	0%	0%	0%
OCDF	2.660	10.640	LT	EMPC	1.3			0.0001	0.0			0.0%		
PCB 189			NC	NC, J				0.00001						
PCB 156			20.7	J, B	20.7	20.7	10.4	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.0%
PCB 157			3.36	J, B	3.4	3.4	1.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105			77.7	J	77.7	77.7	38.9	0.0001	0.0	0.0	0.0	0.3%	0.6%	0.0%
PCB 167			11.2	J	11.2	11.2	5.6	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	8.100	32.400	LT	EMPC, J	4.1			0.0001	0.0			0.0%		
PCB 118			200	J, B	200	200	100	0.00001	0.0	0.0	0.0	0.1%	0.2%	0.0%
PCB 123			5.35	J	5.4	5.4	2.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169								0.001						
PCB 126								0.1						
PCB 77								0.05						
PCB 81								0.1						

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.9	1.2	0.0
All PCBs		0.0	0.0	0.0
All PCDDs/PCDFs/PCBs		2.9	1.2	0.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG08CC
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Cherry Creek Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.447	1.788	2.5		2.5	2.5	2.5	0.001	0.0	0.0	0.0	0.1%	0.1%	0.6%
1234678-HpCDF	1.220	4.880	2.59		2.6	2.6		0.01	0.0	0.0		0.7%	0.8%	
1234789-HpCDF	2.340	9.360	LT		1.2			0.01	0.0			0.3%		
123478-HxCDD	0.772	3.088	LT	EMPC	0.4			0.05	0.0			0.6%		
123478-HxCDF	0.326	1.304	0.423	B	0.4	0.4		0.1	0.0	0.0		1.1%	1.3%	
123678-HxCDD	0.307	1.228	1.09		1.1	1.1		0.01	0.0	0.0		0.3%	0.4%	
123678-HxCDF	0.297	1.188	2.12		2.1	2.1	2.1	0.1	0.2	0.2	0.2	6.0%	6.8%	52.5%
123789-HxCDD	0.317	1.268	0.346		0.3	0.3		0.1	0.0	0.0		0.9%	1.0%	
123789-HxCDF	0.832	3.328	LT	EMPC	0.4			0.1	0.0			1.1%		
12378-PeCDD	0.418	1.672	1.52		1.5	1.5		1	1.5	1.5		42.9%	48.4%	
12378-PeCDF	0.328	1.312	0.332	B	0.3	0.3		0.1	0.0	0.0		0.9%	1.0%	
234678-HxCDF	0.509	2.036	LT	EMPC	0.3			0.1	0.0			0.9%		
23478-PeCDF	0.339	1.356	0.687	B	0.7	0.7		1	0.7	0.7		20.0%	22.6%	
2378-TCDD	0.321	1.284	0.423		0.4	0.4		1	0.4	0.4		11.4%	12.9%	
2378-TCDF	0.344	1.376	LT		0.2			1	0.2			5.7%		
OCDD	0.025	0.100	17		17	17	17	0	0	0	0	0%	0%	0%
OCDF	0.352	1.408	0.757	B	0.8	0.8		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	3.630	14.520	154	J	154	154	77	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.2%
PCB 156	2.530	10.120	652		652	652	652	0.0001	0.1	0.1	0.1	1.9%	2.1%	16.3%
PCB 157	2.600	10.400	142		142	142	142	0.0001	0.0	0.0	0.0	0.4%	0.5%	3.6%
PCB 105	1.130	4.520	551		551	551	551	0.0001	0.1	0.1	0.1	1.6%	1.8%	13.8%
PCB 167	2.400	9.600	482		482	482	482	0.00001	0.0	0.0	0.0	0.1%	0.2%	1.2%
PCB 114	1.100	4.400	40.4		40.4	40.4	40.4	0.0001	0.0	0.0	0.0	0.1%	0.1%	1.0%
PCB 118	1.040	4.160	1620		1620	1620	1620	0.00001	0.0	0.0	0.0	0.5%	0.5%	4.1%
PCB 123	1.120	4.480	28.5		28.5	28.5	28.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 169								0.001						
PCB 126								0.1						
PCB 77								0.05						
PCB 81								0.1						

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		3.3	2.9	0.2
All PCBs		0.2	0.2	0.2
All PCDDs/PCDFs/PCBs		3.5	3.1	0.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG11SW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 11 SW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.280	1.120	7.51		7.5	7.5	7.5	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	1.640	6.560	4.27		4.3	4.3		0.01	0.0	0.0		0.4%	0.5%	
1234789-HpCDF	3.260	13.040	LT		1.6			0.01	0.0			0.2%		
123478-HxCDD	0.966	3.864	LT	EMPC	0.5			0.05	0.0			0.2%		
123478-HxCDF	0.952	3.808	LT	EMPC	0.5			0.1	0.1			0.5%		
123678-HxCDD	0.246	0.984	1.34		1.3	1.3	1.3	0.01	0.0	0.0	0.0	0.1%	0.2%	0.2%
123678-HxCDF	0.595	2.380	1.83		1.8	1.8		0.1	0.2	0.2		1.7%	2.1%	
123789-HxCDD	0.249	0.996	0.553		0.6	0.6		0.1	0.1	0.1		0.6%	0.7%	
123789-HxCDF	0.597	2.388	1.14	B	1.1	1.1		0.1	0.1	0.1		1.0%	1.3%	
12378-PeCDD	1.790	7.160	LT	EMPC	0.9			1	0.9			8.5%		
12378-PeCDF	0.702	2.808	LT		0.4			0.1	0.0			0.4%		
234678-HxCDF	0.674	2.696	LT	EMPC	0.3			0.1	0.0			0.3%		
23478-PeCDF	0.706	2.824	LT	EMPC	0.4			1	0.4			3.8%		
2378-TCDD	0.586	2.344	LT	EMPC	0.3			1	0.3			2.8%		
2378-TCDF	0.409	1.636	LT		0.2			1	0.2			1.9%		
OCDD	0.265	1.060	22.1		22.1	22.1	22.1	0	0	0	0	0%	0%	0%
OCDF	0.410	1.640	1.34	B	1.3	1.3		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	0.777	3.108	129		129	129	129	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.700	6.800	690		690	690	690	0.0001	0.1	0.1	0.1	0.7%	0.8%	0.9%
PCB 157	1.750	7.000	161		161	161	161	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 105	0.462	1.848	674		674	674	674	0.0001	0.1	0.1	0.1	0.6%	0.8%	0.9%
PCB 167	1.610	6.440	481		481	481	481	0.00001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 114	0.450	1.800	48.6		48.6	48.6	48.6	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 118	0.415	1.660	2050		2050	2050	2050	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.3%
PCB 123	0.444	1.776	44.4		44.4	44.4	44.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.750	3.001	8.923		8.9	8.9	8.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.614	2.454	49.5		49.5	49.5	49.5	0.1	5.0	5.0	5.0	46.7%	57.6%	65.1%
PCB 77	2.203	8.812	48.4		48.4	48.4	48.4	0.05	2.4	2.4	2.4	22.8%	28.1%	31.8%
PCB 81	2.022	8.088	6.647		6.6	6.6		0.1	0.7	0.7		6.2%	7.7%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.4	0.4	0.0
All PCBs		8.2	8.2	7.6
All PCDDs/PCDFs/PCBs		10.6	8.6	7.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG33NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 33 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.462	1.848	28.4		28.4	28.4	28.4	0.001	0.0	0.0	0.0	0.2%	0.2%	0.3%
1234678-HpCDF	1.600	6.400	6.27		6.3	6.3		0.01	0.1	0.1		0.5%	0.5%	
1234789-HpCDF	3.230	12.920	LT		1.6			0.01	0.0			0.1%		
123478-HxCDD	0.318	1.272	4.01		4	4	4	0.05	0.2	0.2	0.2	1.6%	1.6%	2.2%
123478-HxCDF	0.875	3.500	1.4		1.4	1.4		0.1	0.1	0.1		1.1%	1.1%	
123678-HxCDD	0.260	1.040	7.12		7.1	7.1	7.1	0.01	0.1	0.1	0.1	0.6%	0.6%	0.8%
123678-HxCDF	0.961	3.844	3.91		3.9	3.9	3.9	0.1	0.4	0.4	0.4	3.1%	3.2%	4.4%
123789-HxCDD	0.265	1.060	2.3		2.3	2.3	2.3	0.1	0.2	0.2	0.2	1.9%	1.9%	2.6%
123789-HxCDF	1.230	4.920	LT	EMPC	0.6			0.1	0.1			0.5%		
12378-PeCDD	0.270	1.080	4.07		4.1	4.1	4.1	1	4.1	4.1	4.1	33.1%	33.6%	46.1%
12378-PeCDF	0.298	1.192	0.77	B	0.8	0.8		0.1	0.1	0.1		0.6%	0.7%	
234678-HxCDF	1.580	6.320	LT	EMPC	0.8			0.1	0.1			0.6%		
23478-PeCDF	0.965	3.860	1.22		1.2	1.2		1	1.2	1.2		9.7%	9.8%	
2378-TCDD	0.312	1.248	0.863		0.9	0.9		1	0.9	0.9		7.3%	7.4%	
2378-TCDF	0.518	2.072	0.569	B	0.6	0.6		1	0.6	0.6		4.8%	4.9%	
OCDD	0.285	1.140	57.5		57.5	57.5	57.5	0	0	0	0	0%	0%	0%
OCDF	0.493	1.972	5.42		5.4	5.4	5.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	10.000	40.000	160	J	160	160	80	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	2.980	11.920	472		472	472	472	0.0001	0.0	0.0	0.0	0.4%	0.4%	0.5%
PCB 157	3.060	12.240	124		124	124	124	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.576	2.304	300		300	300	300	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.3%
PCB 167	2.820	11.280	264		264	264	264	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.561	2.244	24.3		24.3	24.3	24.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.532	2.128	962		962	962	962	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.569	2.276	18.9		18.9	18.9	18.9	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.886	3.544	4.881		4.9	4.9	4.9	0.001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 126	0.615	2.460	25.04		25	25	25	0.1	2.5	2.5	2.5	20.2%	20.5%	28.1%
PCB 77	0.871	3.484	25.52		25.5	25.5	25.5	0.05	1.3	1.3	1.3	10.3%	10.5%	14.3%
PCB 81	0.819	3.275	2.938	B	2.9	2.9		0.1	0.3	0.3		2.3%	2.4%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		8.2	8.0	5.0
All PCBs		4.2	4.2	3.9
All PCDDs/PCDFs/PCBs		12.4	12.2	8.9

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG11NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 11 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.539	2.156	38.5		38.5	38.5	38.5	0.001	0.0	0.0	0.0	0.3%	0.3%	0.4%
1234678-HpCDF	1.290	5.160	10.8		10.8	10.8	10.8	0.01	0.1	0.1	0.1	0.8%	0.8%	1.1%
1234789-HpCDF	2.560	10.240	LT		1.3			0.01	0.0			0.1%		
123478-HxCDD	0.278	1.112	3.37		3.4	3.4	3.4	0.05	0.2	0.2	0.2	1.2%	1.2%	1.7%
123478-HxCDF	0.706	2.824	2.59		2.6	2.6		0.1	0.3	0.3		1.8%	1.9%	
123678-HxCDD	0.236	0.944	10.5		10.5	10.5	10.5	0.01	0.1	0.1	0.1	0.7%	0.8%	1.0%
123678-HxCDF	0.846	3.384	7.31		7.3	7.3	7.3	0.1	0.7	0.7	0.7	5.1%	5.3%	7.2%
123789-HxCDD	0.237	0.948	3.09		3.1	3.1	3.1	0.1	0.3	0.3	0.3	2.2%	2.2%	3.0%
123789-HxCDF	1.150	4.600	LT	EMPC	0.6			0.1	0.1			0.4%		
12378-PeCDD	0.442	1.768	2.96		3	3	3	1	3.0	3.0	3.0	20.8%	21.7%	29.4%
12378-PeCDF	1.410	5.640	LT	EMPC	0.7			0.1	0.1			0.5%		
234678-HxCDF	0.792	3.168	3.12		3.1	3.1		0.1	0.3	0.3		2.2%	2.2%	
23478-PeCDF	0.891	3.564	2.06		2.1	2.1		1	2.1	2.1		14.6%	15.2%	
2378-TCDD	0.247	0.988	0.508		0.5	0.5		1	0.5	0.5		3.5%	3.6%	
2378-TCDF	0.778	3.112	LT		0.4			1	0.4			2.8%		
OCDD	0.332	1.328	80.2		80.2	80.2	80.2	0	0	0	0	0%	0%	0%
OCDF	0.880	3.520	1.18	B	1.2	1.2		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	9.170	36.680	106	J	106	106	53	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.950	7.800	444		444	444	444	0.0001	0.0	0.0	0.0	0.3%	0.3%	0.4%
PCB 157	2.010	8.040	111		111	111	111	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	1.070	4.280	486		486	486	486	0.0001	0.0	0.0	0.0	0.3%	0.4%	0.5%
PCB 167	1.850	7.400	308		308	308	308	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	1.050	4.200	33.9		33.9	33.9	33.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	1.010	4.040	1320		1320	1320	1320	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	1.080	4.320	29.4		29.4	29.4	29.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.191	4.764	6.578		6.6	6.6	6.6	0.001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 126	1.140	4.560	31.72		31.7	31.7	31.7	0.1	3.2	3.2	3.2	22.0%	23.0%	31.1%
PCB 77	2.688	10.752	48.08		48.1	48.1	48.1	0.05	2.4	2.4	2.4	16.7%	17.4%	23.6%
PCB 81	2.194	8.776	4.958	B	5	5		0.1	0.5	0.5		3.5%	3.6%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		8.2	7.6	4.5
All PCBs		6.2	6.2	5.7
All PCDDs/PCDFs/PCBs		14.4	13.8	10.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG29NE
SAMPLE TYPE: American kestrel egg
LOCATION: On-site, Section 29 NE

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.573	2.292	18.9		18.9	18.9	18.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	22.5	90	LT	EMPC	11.3			0.01	0.1			0.4%		
1234789-HpCDF	22.5	90	LT		11.3			0.01	0.1			0.4%		
123478-HxCDD	0.4	1.6	8.64		8.6	8.6	8.6	0.05	0.4	0.4	0.4	1.4%	1.4%	1.5%
123478-HxCDF	0.693	2.772	6.72		6.7	6.7	6.7	0.1	0.7	0.7	0.7	2.2%	2.2%	2.3%
123678-HxCDD	0.328	1.312	15.1		15.1	15.1	15.1	0.01	0.2	0.2	0.2	0.5%	0.5%	0.5%
123678-HxCDF	0.752	3.008	13.6		13.6	13.6	13.6	0.1	1.4	1.4	1.4	4.4%	4.4%	4.7%
123789-HxCDD	0.334	1.336	3.72		3.7	3.7	3.7	0.1	0.4	0.4	0.4	1.2%	1.2%	1.3%
123789-HxCDF	0.855	3.42	1.2	B	1.2	1.2		0.1	0.1	0.1		0.4%	0.4%	
12378-PeCDD	0.272	1.088	9.51		9.5	9.5	9.5	1	9.5	9.5	9.5	30.5%	30.7%	33.2%
12378-PeCDF	0.827	3.308	1.33		1.3	1.3		0.1	0.1	0.1		0.4%	0.4%	
234678-HxCDF	0.75	3	2.36		2.4	2.4		0.1	0.2	0.2		0.8%	0.8%	
23478-PeCDF	0.818	3.272	6.47		6.5	6.5	6.5	1	6.5	6.5	6.5	20.7%	20.9%	22.6%
2378-TCDD	0.232	0.928	1.52		1.5	1.5	1.5	1	1.5	1.5	1.5	4.9%	4.9%	5.3%
2378-TCDF	0.289	1.156	1.01		1	1		1	1.0	1.0		3.2%	3.3%	
OCDD	0.424	1.696	14.4	B	14.4	14.4	7.2	0	0	0	0	0%	0%	0%
OCDF	1.1	4.4	LT		0.6			0.0001	0.0			0.0%		
PCB 189	13	52	71.8	J	71.8	71.8	35.9	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	2.32	9.28	627		627	627	627	0.0001	0.1	0.1	0.1	0.2%	0.2%	0.2%
PCB 157	2.38	9.52	173		173	173	173	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.305	1.22	1260		1260	1260	1260	0.0001	0.1	0.1	0.1	0.4%	0.4%	0.4%
PCB 167	2.2	8.8	339		339	339	339	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.297	1.188	88.3		88.3	88.3	88.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.287	1.148	3130		3130	3130	3130	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.307	1.228	62.7		62.7	62.7	62.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.693	6.772	3.737		3.7	3.7		0.001	0.0	0.0		0.0%	0.0%	
PCB 126	0.9189	3.6756	39.26		39.3	39.3	39.3	0.1	3.9	3.9	3.9	12.6%	12.7%	13.7%
PCB 77	3.689	14.756	79.28		79.3	79.3	79.3	0.05	4.0	4.0	4.0	12.7%	12.8%	13.8%
PCB 81	3.336	13.344	8.381		8.4	8.4		0.1	0.8	0.8		2.7%	2.7%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		22.2	22.0	20.5
All PCBs		9.0	9.0	8.1
All PCDDs/PCDFs/PCBs		31.2	31.0	28.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG35SE
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 35 SE

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.688	2.752	9.72		9.7	9.7	9.7	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.681	2.724	29		29	29	29	0.01	0.3	0.3	0.3	2.5%	2.7%	3.4%
1234789-HpCDF	1.29	5.16	LT		0.6			0.01	0.0			0.1%		
123478-HxCDD	0.552	2.208	1.42		1.4	1.4		0.05	0.1	0.1		0.6%	0.7%	
123478-HxCDF	0.614	2.456	2.35		2.4	2.4		0.1	0.2	0.2		2.0%	2.2%	
123678-HxCDD	0.478	1.912	2.58		2.6	2.6	2.6	0.01	0.0	0.0	0.0	0.2%	0.2%	0.3%
123678-HxCDF	0.581	2.324	9.75		9.8	9.8	9.8	0.1	1.0	1.0	1.0	8.4%	8.9%	11.5%
123789-HxCDD	0.891	3.564	LT	EMPC	0.4			0.1	0.0			0.4%		
123789-HxCDF	0.75	3	1.26	B	1.3	1.3		0.1	0.1	0.1		1.1%	1.2%	
12378-PeCDD	0.437	1.748	2.07		2.1	2.1	2.1	1	2.1	2.1	2.1	17.9%	18.9%	24.3%
12378-PeCDF	0.549	2.196	0.964		1	1		0.1	0.1	0.1		0.8%	0.9%	
234678-HxCDF	0.666	2.664	0.859	B	0.9	0.9		0.1	0.1	0.1		0.7%	0.8%	
23478-PeCDF	1.2	4.8	LT	EMPC	0.6			1	0.6			5.2%		
2378-TCDD	0.353	1.412	0.648		0.6	0.6		1	0.6	0.6		5.6%	5.9%	
2378-TCDF	0.377	1.508	0.766	B	0.8	0.8		1	0.8	0.8		6.6%	7.0%	
OCDD	0.356	1.424	21.9		21.9	21.9	21.9	0	0	0	0	0%	0%	0%
OCDF	0.978	3.912	LT		0.5			0.0001	0.0			0.0%		
PCB 189	17.4	69.6	LT	EMPC, J	8.7			0.00001	0.0			0.0%		
PCB 156	4.43	17.72	612		612	612	612	0.0001	0.1	0.1	0.1	0.5%	0.6%	0.7%
PCB 157	4.55	18.2	170		170	170	170	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 105	0.365	1.46	741		741	741	741	0.0001	0.1	0.1	0.1	0.6%	0.7%	0.9%
PCB 167	4.2	16.8	333		333	333	333	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.356	1.424	43.7		43.7	43.7	43.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 118	0.333	1.332	1750		1750	1750	1750	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 123	0.356	1.424	32.4		32.4	32.4	32.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.028	4.112	7.74		7.7	7.7	7.7	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.7311	2.9244	30.81		30.8	30.8	30.8	0.1	3.1	3.1	3.1	26.6%	28.2%	36.2%
PCB 77	1.467	5.868	37.36		37.4	37.4	37.4	0.05	1.9	1.9	1.9	16.1%	17.1%	22.0%
PCB 81	1.371	5.484	4.051	B	4.1	4.1		0.1	0.4	0.4		3.5%	3.7%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		6.1	5.4	3.4
All PCBs		5.5	5.5	5.1
All PCDDs/PCDFs/PCBs		11.6	10.9	8.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG01RC
SAMPLE TYPE: American kestrel egg
LOCATION: off-post, Riverside Cemetery

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.053	0.213	21.35		21.4	21.4	21.4	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.228	4.912	3.004		3	3		0.01	0.0	0.0		0.0%	0.0%	
1234789-HpCDF	1.676	6.704	LT		0.8			0.01	0.0			0.0%		
123478-HxCDD	0.643	2.574	17.98		18	18	18	0.05	0.9	0.9	0.9	0.2%	0.2%	0.2%
123478-HxCDF	0.168	0.672	8.472		8.5	8.5	8.5	0.1	0.8	0.8	0.8	0.2%	0.2%	0.2%
123678-HxCDD	0.552	2.208	23.12		23.1	23.1	23.1	0.01	0.2	0.2	0.2	0.1%	0.1%	0.1%
123678-HxCDF	0.145	0.582	7.459		7.5	7.5	7.5	0.1	0.7	0.7	0.7	0.2%	0.2%	0.2%
123789-HxCDD	0.544	2.174	6.217		6.2	6.2	6.2	0.1	0.6	0.6	0.6	0.2%	0.2%	0.2%
123789-HxCDF	0.181	0.724	1.223		1.2	1.2	1.2	0.1	0.1	0.1	0.1	0.0%	0.0%	0.0%
12378-PeCDD	0.453	1.810	24.02		24	24	24	1	24.0	24.0	24.0	5.9%	5.9%	6.0%
12378-PeCDF	0.159	0.636	1.324		1.3	1.3	1.3	0.1	0.1	0.1	0.1	0.0%	0.0%	0.0%
234678-HxCDF	11.07	44.28	LT	D	5.5			0.1	0.6			0.1%		
23478-PeCDF	0.127	0.509	16.71		16.7	16.7	16.7	1	16.7	16.7	16.7	4.1%	4.1%	4.1%
2378-TCDD	0.434	1.735	4.144		4.1	4.1	4.1	1	4.1	4.1	4.1	1.0%	1.0%	1.0%
2378-TCDF	0.202	0.806	2.736	U	2.7	2.7	1.4	1	2.7	2.7	1.4	0.7%	0.7%	0.3%
OCDD	0.297	1.186	14.3		14.3	14.3	14.3	0	0	0	0	0%	0%	0%
OCDF	0.555	2.219	5.877		5.9	5.9	5.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	19.3	77.2	8770	C	8770	8770	8770	0.00001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 156	3.06	12.24	41400	S	41400	41400	41400	0.0001	4.1	4.1	4.1	1.0%	1.0%	1.0%
PCB 157	3.14	12.56	5980	C	5980	5980	5980	0.0001	0.6	0.6	0.6	0.1%	0.1%	0.1%
PCB 105	2.89	11.56	24700	C	24700	24700	24700	0.0001	2.5	2.5	2.5	0.6%	0.6%	0.6%
PCB 167	2.9	11.6	24600	C	24600	24600	24600	0.00001	0.2	0.2	0.2	0.1%	0.1%	0.1%
PCB 114	2.81	11.24	1250		1250	1250	1250	0.0001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 118	62600	250400	LT	EMPC, S	31300			0.00001	0.3			0.1%		
PCB 123	2.92	11.68	1100		1100	1100	1100	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	2.691	10.764	450.6		450.6	450.6	450.6	0.001	0.5	0.5	0.5	0.1%	0.1%	0.1%
PCB 126	1.883	7.532	2990		2990	2990	2990	0.1	299.0	299.0	299.0	73.7%	73.9%	74.1%
PCB 77	10.54	42.16	640.6		640.6	640.6	640.6	0.05	32.0	32.0	32.0	7.9%	7.9%	7.9%
PCB 81	10.14	40.56	143.4		143.4	143.4	143.4	0.1	14.3	14.3	14.3	3.5%	3.5%	3.6%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		51.7	51.2	49.8
All PCBs		353.8	353.5	353.5
All PCDDs/PCDFs/PCBs		405.5	404.7	403.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG042
SAMPLE TYPE: American kestrel egg
LOCATION: QC, spiked with PCB 126, 119 pg/g

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.444	5.776	LT	EMPC	0.7			0.001	0.0			0.0%	0.0%	0.0%
1234678-HpCDF	0.308	1.234	LT		0.2			0.01	0.0			0.0%	0.0%	0.0%
1234789-HpCDF	0.429	1.716	LT		0.2			0.01	0.0			0.0%	0.0%	0.0%
123478-HxCDD	0.225	0.901	0.557	B	0.6	0.6		0.05	0.0	0.0		0.2%	0.2%	0.0%
123478-HxCDF	0.139	0.556	LT		0.1			0.1	0.0			0.0%	0.0%	0.0%
123678-HxCDD	0.193	0.772	LT		0.1			0.01	0.0			0.0%	0.0%	0.0%
123678-HxCDF	0.114	0.457	0.37	B	0.4	0.4		0.1	0.0	0.0		0.3%	0.3%	0.0%
123789-HxCDD	0.190	0.759	LT		0.1			0.1	0.0			0.1%	0.0%	0.0%
123789-HxCDF	0.144	0.575	1.837		1.8	1.8	1.8	0.1	0.2	0.2	0.2	1.3%	1.4%	1.6%
12378-PeCDD	0.464	1.857	1.052	B	1.1	1.1		1	1.1	1.1		7.6%	8.1%	0.0%
12378-PeCDF	0.308	1.232	LT		0.2			0.1	0.0			0.1%	0.0%	0.0%
234678-HxCDF	0.135	0.541	0.609	B	0.6	0.6	0.3	0.1	0.1	0.1	0.0	0.4%	0.5%	0.3%
23478-PeCDF	0.256	1.023	LT		0.1			1	0.1			0.9%	0.0%	0.0%
2378-TCDD	0.709	2.835	LT		0.4			1	0.4			2.5%	0.0%	0.0%
2378-TCDF	0.348	1.392	LT		0.2			1	0.2			1.3%	0.0%	0.0%
OCDD	0.506	2.024	10		10	10	10	0	0	0	0	0%	0%	0%
OCDF	0.474	1.898	LT		0.2			0.0001	0.0			0.0%	0.0%	0.0%
PCB 189	3.9	15.6	LT		2			0.00001	0.0			0.0%	0.0%	0.0%
PCB 156	2.91	11.64	19.2	B	19.2	19.2	9.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	2.99	11.96	LT		1.5			0.0001	0.0			0.0%	0.0%	0.0%
PCB 105	1.74	6.96	49	B	49	49	24.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	7.51	30.04	LT	EMPC	3.8			0.00001	0.0			0.0%	0.0%	0.0%
PCB 114	2.6	10.4	LT		1.3			0.0001	0.0			0.0%	0.0%	0.0%
PCB 118	1.59	6.36	129	B	129	129	64.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	4.16	16.64	LT	EMPC	2.1			0.00001	0.0			0.0%	0.0%	0.0%
PCB 169	1.486	5.944	LT		0.7			0.001	0.0			0.0%	0.0%	0.0%
PCB 126	3.327	13.308	111		111	111	111	0.1	11.1	11.1	11.1	79.8%	85.1%	98.1%
PCB 77	3.734	14.936	11.39	B	11.4	11.4		0.05	0.6	0.6		4.1%	4.4%	0.0%
PCB 81	3.561	14.244	LT		1.8			0.1	0.2			1.3%	0.0%	0.0%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.2	1.4	0.2
All PCBs		11.9	11.7	11.1
All PCDDs/PCDFs/PCBs		14.1	13.1	11.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG03AR
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, Aurora Reservoir

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	3.25	13	LT	EMPC	1.6			0.001	0.0			0.0%		
1234678-HpCDF	0.642	2.568	LT	EMPC	0.3			0.01	0.0			0.0%		
1234789-HpCDF	0.813	3.252	LT		0.4			0.01	0.0			0.0%		
123478-HxCDD	0.074	0.295	0.769		0.8	0.8	0.8	0.05	0.0	0.0	0.0	0.5%	0.5%	0.6%
123478-HxCDF	0.144	0.576	0.283		0.3	0.3		0.1	0.0	0.0		0.3%	0.3%	
123678-HxCDD	0.064	0.256	0.943		0.9	0.9	0.9	0.01	0.0	0.0	0.0	0.1%	0.1%	0.2%
123678-HxCDF	0.119	0.474	0.44	B	0.4	0.4		0.1	0.0	0.0		0.5%	0.5%	
123789-HxCDD	0.063	0.251	0.401		0.4	0.4	0.4	0.1	0.0	0.0	0.0	0.5%	0.5%	0.6%
123789-HxCDF	0.142	0.567	0.663	B	0.7	0.7	0.3	0.1	0.1	0.1	0.0	0.8%	0.8%	0.5%
12378-PeCDD	0.191	0.762	1.298	B	1.3	1.3	0.6	1	1.3	1.3	0.6	15.3%	15.5%	10.5%
12378-PeCDF	0.161	0.643	0.452		0.5	0.5		0.1	0.0	0.0		0.5%	0.5%	
234678-HxCDF	2.254	9.016	LT	D	1.1			0.1	0.1			1.3%		
23478-PeCDF	0.123	0.494	0.766		0.8	0.8	0.8	1	0.8	0.8	0.8	9.0%	9.2%	12.4%
2378-TCDD	0.227	0.909	0.463		0.5	0.5		1	0.5	0.5		5.5%	5.5%	
2378-TCDF	0.133	0.533	0.924	U	0.9	0.9	0.5	1	0.9	0.9	0.5	10.9%	11.1%	7.5%
OCDD	0.117	0.468	13.22		13.2	13.2	13.2	0	0	0	0	0%	0%	0%
OCDF	0.139	0.554	0.659	B	0.7	0.7	0.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	1.94	7.76	87.3		87.3	87.3	87.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.64	6.56	340		340	340	340	0.0001	0.0	0.0	0.0	0.4%	0.4%	0.6%
PCB 157	1.68	6.72	64.2		64.2	64.2	64.2	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.343	1.372	379		379	379	379	0.0001	0.0	0.0	0.0	0.4%	0.5%	0.6%
PCB 167	1.55	6.2	239		239	239	239	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.334	1.336	27.4		27.4	27.4	27.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.303	1.212	992		992	992	992	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 123	0.324	1.296	LT		0.2			0.00001	0.0			0.0%		
PCB 169	0.31	1.24	6.854		6.9	6.9	6.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.455	1.820	21.94		21.9	21.9	21.9	0.1	2.2	2.2	2.2	25.9%	26.3%	35.5%
PCB 77	1.393	5.572	37.58		37.6	37.6	37.6	0.05	1.9	1.9	1.9	22.2%	22.5%	30.4%
PCB 81	1.357	5.428	4.602		4.6	4.6		0.1	0.5	0.5		5.4%	5.5%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		3.9	3.8	2
All PCBs		4.6	4.6	4.2
All PCDDs/PCDFs/PCBs		8.5	8.4	6.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG01YP
SAMPLE TYPE: American kestrel egg
LOCATION: Off-post, York Salvage Ponds

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.022	0.089	6.293		6.3	6.3	6.3	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	0.772	3.088	LT	EMPC	0.4			0.01	0.0			0.0%		
1234789-HpCDF	0.932	3.728	LT		0.5			0.01	0.0			0.0%		
123478-HxCDD	0.104	0.415	1.779		1.8	1.8	1.8	0.05	0.1	0.1	0.1	0.5%	0.5%	0.5%
123478-HxCDF	0.083	0.331	2.245		2.2	2.2	2.2	0.1	0.2	0.2	0.2	1.1%	1.3%	1.3%
123678-HxCDD	0.090	0.359	4.076		4.1	4.1	4.1	0.01	0.0	0.0	0.0	0.2%	0.2%	0.2%
123678-HxCDF	0.071	0.283	1.469		1.5	1.5	1.5	0.1	0.1	0.1	0.1	0.7%	0.8%	0.9%
123789-HxCDD	0.088	0.351	0.704		0.7	0.7	0.7	0.1	0.1	0.1	0.1	0.4%	0.4%	0.4%
123789-HxCDF	0.086	0.343	0.996	B	1	1	0.5	0.1	0.1	0.1	0.1	0.5%	0.6%	0.3%
12378-PeCDD	2.721	10.884	LT	EMPC	1.4			1	1.4			6.9%		
12378-PeCDF	0.136	0.544	0.982		1	1	1	0.1	0.1	0.1	0.1	0.5%	0.6%	0.6%
234678-HxCDF	2.893	11.572	LT	D	1.4			0.1	0.1			0.7%		
23478-PeCDF	0.106	0.424	2.144		2.1	2.1	2.1	1	2.1	2.1	2.1	10.9%	12.1%	12.6%
2378-TCDD	0.696	2.784	LT	EMPC	0.3			1	0.3			1.8%		
2378-TCDF	0.208	0.833	0.685	U	0.7	0.7		1	0.7	0.7		3.5%	3.9%	
OCDD	0.202	0.808	12.53		12.5	12.5	12.5	0	0	0	0	0%	0%	0%
OCDF	0.788	3.152	LT	EMPC	0.4			0.0001	0.0			0.0%		
PCB 189	1.31	5.24	226		226	226	226	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.89	7.56	1330		1330	1330	1330	0.0001	0.1	0.1	0.1	0.7%	0.7%	0.8%
PCB 157	1.94	7.76	227		227	227	227	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.21	0.84	1060		1060	1060	1060	0.0001	0.1	0.1	0.1	0.5%	0.6%	0.6%
PCB 167	1.79	7.16	826		826	826	826	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.205	0.82	89.3		89.3	89.3	89.3	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 118	0.188	0.752	3610	C	3610	3610	3610	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 123			64.5		64.5	64.5	64.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.459	1.838	10.9		10.9	10.9	10.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.411	1.643	83.59		83.6	83.6	83.6	0.1	8.4	8.4	8.4	42.5%	47.0%	49.0%
PCB 77	1.873	7.492	89.94		89.9	89.9	89.9	0.05	4.5	4.5	4.5	22.9%	25.3%	26.4%
PCB 81	1.837	7.348	9.943		9.9	9.9	9.9	0.1	1.0	1.0	1.0	5.1%	5.6%	5.8%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		5.4	3.6	2.8
All PCBs		14.2	14.2	14.2
All PCDDs/PCDFs/PCBs		19.6	17.8	17

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG32NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 32 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.02803	0.1121	6.713		6.7	6.7	6.7	0.001	0.0	0.0	0.0	0.1%	0.1%	0.2%
1234678-HpCDF	0.985	3.94	LT	EMPC	0.5			0.01	0.0			0.1%		
1234789-HpCDF	0.5018	2.0072	LT		0.3			0.01	0.0			0.0%		
123478-HxCDD	0.03345	0.1338	1.359		1.4	1.4	1.4	0.05	0.1	0.1	0.1	1.2%	1.4%	1.6%
123478-HxCDF	0.04074	0.163	0.365		0.4	0.4	0.4	0.1	0.0	0.0	0.0	0.6%	0.8%	0.9%
123678-HxCDD	0.02873	0.1149	1.938		1.9	1.9	1.9	0.01	0.0	0.0	0.0	0.3%	0.4%	0.5%
123678-HxCDF	0.613	2.452	LT	EMPC	0.3			0.1	0.0			0.5%		
123789-HxCDD	0.02824	0.113	0.802		0.8	0.8	0.8	0.1	0.1	0.1	0.1	1.4%	1.7%	1.9%
123789-HxCDF	0.04054	0.1622	0.703	B	0.7	0.7	0.4	0.1	0.1	0.1	0.0	1.2%	1.5%	0.8%
12378-PeCDD	1.706	6.824	LT	EMPC	0.9			1	0.9			14.5%		
12378-PeCDF	0.137	0.548	LT		0.1			0.1	0.0			0.1%		
234678-HxCDF	1.259	5.036	LT	D	0.6			0.1	0.1			1.1%		
23478-PeCDF	0.04871	0.1948	0.44		0.4	0.4	0.4	1	0.4	0.4	0.4	7.5%	9.2%	10.4%
2378-TCDD	0.2799	1.1196	LT		0.1			1	0.1			2.4%		
2378-TCDF	0.1253	0.5012	0.262	U	0.3	0.3		1	0.3	0.3		4.4%	5.5%	
OCDD	0.221	0.884	23.89		23.9	23.9	23.9	0	0	0	0	0%	0%	0%
OCDF	0.1905	0.762	1.388		1.4	1.388	1.388	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	2.71	10.84	62.4		62.4	62.4	62.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	0.833	3.332	331		331	331	331	0.0001	0.0	0.0	0.0	0.6%	0.7%	0.8%
PCB 157	0.856	3.424	53		53	53	53	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.329	1.316	273		273	273	273	0.0001	0.0	0.0	0.0	0.5%	0.6%	0.6%
PCB 167	0.789	3.156	170		170	170	170	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.321	1.284	16.7		16.7	16.7	16.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.297	1.188	838		838	838	838	0.00001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 123	0.318	1.272	9.45		9.5	9.5	9.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.4953	1.9812	3.099		3.1	3.1	3.1	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.9557	3.8228	22.6		22.6	22.6	22.6	0.1	2.3	2.3	2.3	38.3%	47.1%	53.2%
PCB 77	1.79	7.16	24.35		24.4	24.4	24.4	0.05	1.2	1.2	1.2	20.7%	25.4%	28.7%
PCB 81	1.694	6.776	2.521	B	2.5	2.5		0.1	0.3	0.3		4.3%	5.3%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		2.1	1	0.7
All PCBs		3.8	3.8	3.6
All PCDDs/PCDFs/PCBs		5.9	4.8	4.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG046
SAMPLE TYPE: American kestrel egg
LOCATION: QC, spiked with PCB 126, 1176 pg/g

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.027	0.108	2.379		2.4	2.4	2.4	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.67	6.68	LT		0.8			0.01	0.0			0.0%		
1234789-HpCDF	2.247	8.988	LT		1.1			0.01	0.0			0.0%		
123478-HxCDD	0.656	2.624	LT	EMPC	0.3			0.05	0.0			0.0%		
123478-HxCDF	0.126	0.504	LT		0.1			0.1	0.0			0.0%		
123678-HxCDD	0.167	0.666	LT		0.1			0.01	0.0			0.0%		
123678-HxCDF	0.415	1.66	LT	EMPC	0.2			0.1	0.0			0.0%		
123789-HxCDD	0.163	0.653	LT		0.1			0.1	0.0			0.0%		
123789-HxCDF	0.039	0.155	1.6		1.6	1.6	1.6	0.1	0.2	0.2	0.2	0.1%	0.1%	0.1%
12378-PeCDD	1.164	4.656	LT	EMPC	0.6			1	0.6			0.5%		
12378-PeCDF	0.104	0.415	LT		0.1			0.1	0.0			0.0%		
234678-HxCDF	0.036	0.145	0.702	B	0.7	0.7	0.4	0.1	0.1	0.1	0.0	0.1%	0.1%	0.0%
23478-PeCDF	0.077	0.31	LT		0			1	0.0			0.0%		
2378-TCDD	0.766	3.065	LT		0.4			1	0.4			0.3%		
2378-TCDF	0.464	1.856	LT		0.2			1	0.2			0.2%		
OCDD	0.609	2.436	22.83		22.8	22.8	22.8	0	0	0	0	0%	0%	0%
OCDF	0.434	1.736	1.549		1.5	1.5		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	2.54	10.16	LT		1.3			0.00001	0.0			0.0%		
PCB 156	1.21	4.84	12.3	B	12.3	12.3	6.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	1.24	4.96	4.29	B	4.3	4.3		0.0001	0.0	0.0		0.0%	0.0%	
PCB 105	1.52	6.08	39.4	B	39.4	39.4	19.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	5.17	20.68	LT	EMPC	2.6			0.00001	0.0			0.0%		
PCB 114	1.48	5.92	LT		0.7			0.0001	0.0			0.0%		
PCB 118	1.42	5.68	104	B	104	104	52	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	1.94	7.76	LT	EMPC	1			0.00001	0.0			0.0%		
PCB 169	1.034	4.136	2.947		2.9	2.9		0.001	0.0	0.0		0.0%	0.0%	
PCB 126	3.982	15.928	1150		1150	1150	1150	0.1	115.0	115.0	115.0	97.9%	99.2%	99.8%
PCB 77	4.659	18.636	13.99		14	14		0.05	0.7	0.7		0.6%	0.6%	
PCB 81	4.873	19.492	LT		2.4			0.1	0.2			0.2%		

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.5	0.2	0.2
All PCBs		116	115.7	115
All PCDDs/PCDFs/PCBs		117.5	115.9	115.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG01ACP
SAMPLE TYPE: American kestrel egg
LOCATION: off-post, Adams County Fairgrounds

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.023	0.093	5.49		5.5	5.5	5.5	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.049	4.196	LT		0.5			0.01	0.0			0.0%		
1234789-HpCDF	1.394	5.576	LT		0.7			0.01	0.0			0.0%		
123478-HxCDD	0.138	0.551	4.626		4.6	4.6	4.6	0.05	0.2	0.2	0.2	0.9%	1.0%	1.0%
123478-HxCDF	0.045	0.182	1.691		1.7	1.7	1.7	0.1	0.2	0.2	0.2	0.7%	0.7%	0.7%
123678-HxCDD	0.121	0.483	11.1		11.1	11.1	11.1	0.01	0.1	0.1	0.1	0.5%	0.5%	0.5%
123678-HxCDF	0.038	0.15	2.555		2.6	2.6	2.6	0.1	0.3	0.3	0.3	1.0%	1.1%	1.1%
123789-HxCDD	0.118	0.471	1.588		1.6	1.6	1.6	0.1	0.2	0.2	0.2	0.6%	0.7%	0.7%
123789-HxCDF	0.045	0.178	0.897	B	0.9	0.9	0.4	0.1	0.1	0.1	0.0	0.4%	0.4%	0.2%
12378-PeCDD	0.121	0.484	7.705		7.7	7.7	7.7	1	7.7	7.7	7.7	31.5%	31.7%	34.2%
12378-PeCDF	0.688	2.752	LT	EMPC	0.3			0.1	0.0			0.1%		
234678-HxCDF	2.180	8.720	LT	D	1.1			0.1	0.1			0.4%		
23478-PeCDF	0.066	0.26	3.422		3.4	3.4	3.4	1	3.4	3.4	3.4	14.0%	14.1%	15.2%
2378-TCDD	0.379	1.518	1.219		1.2	1.2		1	1.2	1.2		5.0%	5.0%	
2378-TCDF	0.115	0.459	1.013	U	1	1	0.5	1	1.0	1.0	0.5	4.1%	4.2%	2.2%
OCDD	0.182	0.728	5.329	B	5.3	5.3	2.7	0	0	0	0	0%	0%	0%
OCDF	0.362	1.447	1.005	B	1	1		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	2.14	8.56	133		133	133	133	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.56	6.24	744		744	744	744	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 157	1.6	6.4	131		131	131	131	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.456	1.824	682		682	682	682	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 167	1.48	5.92	404		404	404	404	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.444	1.776	54.4		54.4	54.4	54.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.415	1.66	2120		2120	2120	2120	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.443	1.772	45.4		45.4	45.4	45.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.653	2.612	7.494		7.5	7.5	7.5	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.814	3.255	46.95		47	47	47	0.1	4.7	4.7	4.7	19.2%	19.3%	20.8%
PCB 77	2.076	8.304	83.18		83.2	83.2	83.2	0.05	4.2	4.2	4.2	17.0%	17.1%	18.4%
PCB 81	1.961	7.844	8.985		9	9	9	0.1	0.9	0.9	0.9	3.7%	3.7%	4.0%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		14.5	14.3	12.6
All PCBs		10.0	10.0	10.0
All PCDDs/PCDFs/PCBs		24.5	24.3	22.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG03NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 3 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.095	0.381	6.348		6.3	6.3	6.3	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.1	4.4	LT		0.6			0.01	0.0			0.0%		
1234789-HpCDF	1.507	6.028	LT		0.8			0.01	0.0			0.0%		
123478-HxCDD	0.127	0.508	3.418		3.4	3.4	3.4	0.05	0.2	0.2	0.2	0.4%	0.4%	0.4%
123478-HxCDF	0.108	0.432	1.928		1.9	1.9	1.9	0.1	0.2	0.2	0.2	0.5%	0.5%	0.5%
123678-HxCDD	0.107	0.429	5.55		5.6	5.6	5.6	0.01	0.1	0.1	0.1	0.1%	0.1%	0.1%
123678-HxCDF	0.093	0.37	1.609		1.6	1.6	1.6	0.1	0.2	0.2	0.2	0.4%	0.4%	0.4%
123789-HxCDD	0.106	0.425	0.95		1	1	1	0.1	0.1	0.1	0.1	0.2%	0.2%	0.2%
123789-HxCDF	0.111	0.442	0.899	B	0.9	0.9	0.5	0.1	0.1	0.1	0.0	0.2%	0.2%	0.1%
12378-PeCDD	0.247	0.987	6.899		6.9	6.9	6.9	1	6.9	6.9	6.9	16.5%	16.7%	17.0%
12378-PeCDF	0.475	1.900	LT	EMPC	0.2			0.1	0.0			0.1%		
234678-HxCDF	2.423	9.692	LT	D	1.2			0.1	0.1			0.3%		
23478-PeCDF	0.086	0.35	4.305		4.3	4.3	4.3	1	4.3	4.3	4.3	10.3%	10.5%	10.6%
2378-TCDD	1.089	4.356	LT	EMPC	0.5			1	0.5			1.3%		
2378-TCDF	0.131	0.524	0.947	U	0.9	0.9	0.5	1	0.9	0.9	0.5	2.3%	2.3%	1.2%
OCDD	0.123	0.491	9.209	B	9.2	9.2	4.6	0	0	0	0	0%	0%	0%
OCDF	0.273	1.092	1.493		1.5	1.5	1.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	10.7	42.8	748		748	748	748	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	2.79	11.16	3060		3060	3060	3060	0.0001	0.3	0.3	0.3	0.7%	0.7%	0.8%
PCB 157	2.86	11.44	502		502	502	502	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 105	0.435	1.74	1750		1750	1750	1750	0.0001	0.2	0.2	0.2	0.4%	0.4%	0.4%
PCB 167	2.64	10.56	1670		1670	1670	1670	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.423	1.692	147		147	147	147	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.4	1.6	5670	C	5670	5670	5670	0.00001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 123	0.428	1.712	112		112	112	112	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.653	2.613	24.69		24.7	24.7	24.7	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 126	0.985	3.942	161.6		161.6	161.6	161.6	0.1	16.2	16.2	16.2	38.6%	39.2%	39.7%
PCB 77	1.758	7.032	195.3		195.3	195.3	195.3	0.05	9.8	9.8	9.8	23.3%	23.7%	24.0%
PCB 81	1.654	6.616	16.88		16.9	16.9	16.9	0.1	1.7	1.7	1.7	4.0%	4.1%	4.2%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		13.6	12.9	12.4
All PCBs		28.3	28.3	28.3
All PCDDs/PCDFs/PCBs		41.9	41.2	40.7

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG35NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 35 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.021	0.085	57.11		57.1	57.1	57.1	0.001	0.1	0.1	0.1	0.3%	0.3%	0.3%
1234678-HpCDF	0.717	2.866	15.96		16	16	16	0.01	0.2	0.2	0.2	0.7%	0.8%	0.8%
1234789-HpCDF	0.996	3.982	1.203		1.2	1.2		0.01	0.0	0.0		0.1%	0.1%	0.0%
123478-HxCDD	0.078	0.312	7.306		7.3	7.3	7.3	0.05	0.4	0.4	0.4	1.6%	1.8%	1.9%
123478-HxCDF	0.209	0.834	2.771		2.8	2.8	2.8	0.1	0.3	0.3	0.3	1.2%	1.4%	1.4%
123678-HxCDD	0.067	0.267	12.56		12.6	12.6	12.6	0.01	0.1	0.1	0.1	0.6%	0.6%	0.6%
123678-HxCDF	0.175	0.70	4.176		4.2	4.2	4.2	0.1	0.4	0.4	0.4	1.9%	2.1%	2.1%
123789-HxCDD	0.066	0.263	6.358		6.4	6.4	6.4	0.1	0.6	0.6	0.6	2.8%	3.1%	3.3%
123789-HxCDF	0.920	3.680	LT	EMPC	0.5			0.1	0.0			0.2%	0.0%	0.0%
12378-PeCDD	0.153	0.610	8.902		8.9	8.9	8.9	1	8.9	8.9	8.9	39.6%	43.7%	45.7%
12378-PeCDF	0.614	2.456	LT	EMPC	0.3			0.1	0.0			0.1%	0.0%	0.0%
234678-HxCDF	21.4	85.6	LT	D	10.7			0.1	1.1			4.8%	0.0%	0.0%
23478-PeCDF	0.090	0.36	1.774		1.8	1.8	1.8	1	1.8	1.8	1.8	7.9%	8.7%	9.1%
2378-TCDD	1.951	7.804	LT	EMPC	1			1	1.0			4.3%	0.0%	0.0%
2378-TCDF	0.173	0.691	0.707	U	0.7	0.7	0.4	1	0.7	0.7	0.4	3.1%	3.5%	1.8%
OCDD	0.179	0.716	103.7		103.7	103.7	103.7	0	0	0	0	0%	0%	0%
OCDF	0.201	0.805	8.584		8.6	8.6	8.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	1.25	5	124		124	124	124	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.53	6.12	923		923	923	923	0.0001	0.1	0.1	0.1	0.4%	0.5%	0.5%
PCB 157	1.58	6.32	158		158	158	158	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.391	1.564	1130		1130	1130	1130	0.0001	0.1	0.1	0.1	0.5%	0.6%	0.6%
PCB 167	1.45	5.8	562		562	562	562	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.381	1.524	99		99	99	99	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 118	0.357	1.428	3860	C	3860	3860	3860	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 123	0.382	1.528	85.9		85.9	85.9	85.9	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.410	1.640	8.243		8.2	8.2	8.2	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.735	2.940	36.75		36.8	36.8	36.8	0.1	3.7	3.7	3.7	16.3%	18.1%	18.9%
PCB 77	1.605	6.42	49.2		49.2	49.2	49.2	0.05	2.5	2.5	2.5	10.9%	12.1%	12.6%
PCB 81	1.501	6.004	5.021		5	5		0.1	0.5	0.5		2.2%	2.5%	0.0%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		15.6	13.5	13.1
All PCBs		6.9	6.9	6.4
All PCDDs/PCDFs/PCBs		22.5	20.4	19.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG25NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 25 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.023	0.093	155		155	155	155	0.001	0.2	0.2	0.2	0.6%	0.7%	0.7%
1234678-HpCDF	0.588	2.3524	23.37		23.4	23.4	23.4	0.01	0.2	0.2	0.2	0.9%	1.0%	1.1%
1234789-HpCDF	0.825	3.301	3.05		3.1	3.1		0.01	0.0	0.0		0.1%	0.1%	
123478-HxCDD	0.057	0.228	16.23		16.2	16.2	16.2	0.05	0.8	0.8	0.8	3.0%	3.6%	3.7%
123478-HxCDF	0.294	1.177	3.708		3.7	3.7	3.7	0.1	0.4	0.4	0.4	1.4%	1.7%	1.7%
123678-HxCDD	0.049	0.198	22.93		22.9	22.9	22.9	0.01	0.2	0.2	0.2	0.8%	1.0%	1.1%
123678-HxCDF	0.255	1.02	4.606		4.6	4.6	4.6	0.1	0.5	0.5	0.5	1.7%	2.1%	2.1%
123789-HxCDD	0.048	0.193	13.58		13.6	13.6	13.6	0.1	1.4	1.4	1.4	5.0%	6.1%	6.3%
123789-HxCDF	0.911	3.644	LT	EMPC	0.5			0.1	0.0			0.2%		
12378-PeCDD	0.199	0.796	10.62		10.6	10.6	10.6	1	10.6	10.6	10.6	39.1%	47.4%	48.9%
12378-PeCDF	0.725	2.900	LT	EMPC	0.4			0.1	0.0			0.1%		
234678-HxCDF	93.16	372.64	LT	D	46.6			0.1	4.7			17.2%		
23478-PeCDF	0.135	0.54	1.422		1.4	1.4	1.4	1	1.4	1.4	1.4	5.2%	6.3%	6.5%
2378-TCDD	0.306	1.224	1.626		1.6	1.6	1.6	1	1.6	1.6	1.6	6.0%	7.3%	7.5%
2378-TCDF	0.175	0.7	0.701	U	0.7	0.7	0.4	1	0.7	0.7	0.4	2.6%	3.1%	1.6%
OCDD	0.155	0.619	405.3		405.3	405.3	405.3	0	0	0	0	0%	0%	0%
OCDF	0.404	1.614	26.54		26.5	26.5	26.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	1.69	6.76	77.5		77.5	77.5	77.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.73	6.92	523		523	523	523	0.0001	0.1	0.1	0.1	0.2%	0.2%	0.2%
PCB 157	1.78	7.12	115		115	115	115	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 105	0.896	3.584	445		445	445	445	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 167	1.64	6.56	314		314	314	314	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.873	3.492	31.2		31.2	31.2	31.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.82	3.28	1200		1200	1200	1200	0.00001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 123	0.877	3.508	36		36	36	36	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.391	1.565	5.696		5.7	5.7	5.7	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	1.033	4.132	24.96		25	25	25	0.1	2.5	2.5	2.5	9.2%	11.1%	11.5%
PCB 77	1.415	5.66	28.97		29	29	29	0.05	1.4	1.4	1.4	5.3%	6.5%	6.7%
PCB 81	1.409	5.636	3.147		3.1	3.1		0.1	0.3	0.3		1.2%	1.4%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		22.8	18	17.6
All PCBs		4.4	4.4	4.1
All PCDDs/PCDFs/PCBs		27.2	22.4	21.7

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG26NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 26 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.073	0.292	13.49		13.5	13.5	13.5	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	1.159	4.636	3.224		3.2	3.2		0.01	0.0	0.0		0.2%	0.3%	
1234789-HpCDF	1.655	6.620	LT		0.8			0.01	0.0			0.0%		
123478-HxCDD	0.094	0.376	5.298		5.3	5.3	5.3	0.05	0.3	0.3	0.3	1.5%	2.2%	2.9%
123478-HxCDF	0.084	0.338	1.347		1.3	1.3	1.3	0.1	0.1	0.1	0.1	0.8%	1.1%	1.5%
123678-HxCDD	0.081	0.326	7.687		7.7	7.7	7.7	0.01	0.1	0.1	0.1	0.4%	0.6%	0.8%
123678-HxCDF	0.070	0.28	2.392		2.4	2.4	2.4	0.1	0.2	0.2	0.2	1.4%	2.0%	2.6%
123789-HxCDD	0.080	0.319	2.71		2.7	2.7	2.7	0.1	0.3	0.3	0.3	1.6%	2.2%	3.0%
123789-HxCDF	0.957	3.828	LT	EMPC	0.5			0.1	0.0			0.3%		
12378-PeCDD	8.818	35.272	LT	EMPC	4.4			1	4.4			25.4%		
12378-PeCDF	0.146	0.584	0.719		0.7	0.7	0.7	0.1	0.1	0.1	0.1	0.4%	0.6%	0.8%
234678-HxCDF	15.26	61.04	LT	D	7.6			0.1	0.8			4.4%		
23478-PeCDF	0.110	0.44	1.52		1.5	1.5	1.5	1	1.5	1.5	1.5	8.8%	12.6%	16.8%
2378-TCDD	0.541	2.166	1.99		2	2		1	2.0	2.0		11.5%	16.4%	
2378-TCDF	0.19	0.758	0.655	U	0.7	0.7		1	0.7	0.7		3.8%	5.4%	
OCDD	0.143	0.571	19.2		19.2	19.2	19.2	0	0	0	0	0%	0%	0%
OCDF	1.875	7.5	LT	EMPC	0.9			0.0001	0.0			0.0%		
PCB 189	3.03	12.12	140		140	140	140	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	0.757	3.028	845		845	845	845	0.0001	0.1	0.1	0.1	0.5%	0.7%	0.9%
PCB 157	0.778	3.112	196		196	196	196	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 105	0.435	1.74	808		808	808	808	0.0001	0.1	0.1	0.1	0.5%	0.7%	0.9%
PCB 167	0.717	2.868	488		488	488	488	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 114	0.424	1.696	41		41	41	41	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.418	1.672	2710		2710	2710	2710	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.3%
PCB 123	40.8	163.2	44.6		44.6	44.6		0.00001	0.0	0.0		0.0%	0.0%	
PCB 169	0.524	2.097	5.915		5.9	5.9	5.9	0.001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 126	0.770	3.081	42.3		42.3	42.3	42.3	0.1	4.2	4.2	4.2	24.4%	35.0%	46.7%
PCB 77	1.505	6.02	40.05		40.1	40.1	40.1	0.05	2.0	2.0	2.0	11.6%	16.6%	22.1%
PCB 81	1.468	5.872	3.682		3.7	3.7		0.1	0.4	0.4		2.1%	3.0%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		10.5	5.3	2.6
All PCBs		6.8	6.8	6.5
All PCDDs/PCDFs/PCBs		17.3	12.1	9.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG19NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 19 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.070	0.281	9.715		9.7	9.7	9.7	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.612	6.448	LT		0.8			0.01	0.0			0.0%		
1234789-HpCDF	6.310	25.240	LT		3.2			0.01	0.0			0.1%		
123478-HxCDD	4.769	19.076	LT	EMPC	2.4			0.05	0.1			0.3%		
123478-HxCDF	0.144	0.574	1.202		1.2	1.2	1.2	0.1	0.1	0.1	0.1	0.3%	0.3%	0.3%
123678-HxCDD	7.751	31.004	LT	EMPC	3.9			0.01	0.0			0.1%		
123678-HxCDF	0.130	0.52	3.131		3.1	3.1	3.1	0.1	0.3	0.3	0.3	0.7%	0.7%	0.7%
123789-HxCDD	0.183	0.734	1.202		1.2	1.2	1.2	0.1	0.1	0.1	0.1	0.3%	0.3%	0.3%
123789-HxCDF	0.867	3.468	LT	EMPC	0.4			0.1	0.0			0.1%		
12378-PeCDD	0.079	0.315	8.208		8.2	8.2	8.2	1	8.2	8.2	8.2	18.4%	19.1%	19.1%
12378-PeCDF	0.451	1.804	LT		0.2			0.1	0.0			0.1%		
234678-HxCDF	15.65	62.6	LT	D	7.8			0.1	0.8			1.8%		
23478-PeCDF	0.172	0.687	2.129		2.1	2.1	2.1	1	2.1	2.1	2.1	4.8%	4.9%	4.9%
2378-TCDD	0.615	2.461	3.76		3.8	3.8	3.8	1	3.8	3.8	3.8	8.4%	8.7%	8.7%
2378-TCDF	1.181	4.724	LT	EMPC	0.6			1	0.6			1.3%		
OCDD	0.239	0.958	14.21		14.2	14.2	14.2	0	0	0	0	0%	0%	0%
OCDF	1.099	4.396	2.34		2.3			0.0001	0.0			0.0%		
PCB 189	1.33	5.32	269		269	269	269	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	2.07	8.28	5100	C	5100	5100	5100	0.0001	0.5	0.5	0.5	1.1%	1.2%	1.2%
PCB 157	2.12	8.48	848		848	848	848	0.0001	0.1	0.1	0.1	0.2%	0.2%	0.2%
PCB 105	1.12	4.48	7360	C	7360	7360	7360	0.0001	0.7	0.7	0.7	1.6%	1.7%	1.7%
PCB 167	1.96	7.84	1630		1630	1630	1630	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	1.09	4.36	368		368	368	368	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	1.02	4.08	17900	C	17900	17900	17900	0.00001	0.2	0.2	0.2	0.4%	0.4%	0.4%
PCB 123	1.09	4.36	229		229	229	229	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.433	1.732	10.79		10.8	10.8	10.8	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.353	1.412	171.2		171.2	171.2	171.2	0.1	17.1	17.1	17.1	38.3%	39.8%	39.8%
PCB 77	1.506	6.024	167.1		167.1	167.1	167.1	0.05	8.4	8.4	8.4	18.7%	19.4%	19.4%
PCB 81	1.409	5.636	13.47		13.5	13.5	13.5	0.1	1.3	1.3	1.3	3.0%	3.1%	3.1%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		16.3	14.7	14.7
All PCBs		28.4	28.4	28.4
All PCDDs/PCDFs/PCBs		44.7	43.1	43.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG053
SAMPLE TYPE: American kestrel egg
LOCATION: QC, spiked with PCB 126, 1031 pg/g

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.036	0.144	1.113	B	1.1	1.1	0.6	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	0.182	0.726	LT		0.1			0.01	0.0			0.0%		
1234789-HpCDF	0.256	1.023	LT		0.1			0.01	0.0			0.0%		
123478-HxCDD	0.066	0.264	0.426	B	0.4	0.4	0.2	0.05	0.0	0.0	0.0	0.0%	0.0%	0.0%
123478-HxCDF	0.041	0.164	LT		0			0.1	0.0			0.0%		
123678-HxCDD	0.059	0.234	LT		0			0.01	0.0			0.0%		
123678-HxCDF	0.035	0.14	0.343	B	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0%	0.0%	0.0%
123789-HxCDD	0.057	0.227	LT		0			0.1	0.0			0.0%		
123789-HxCDF	0.969	3.876	LT	EMPC	0.5			0.1	0.0			0.1%		
12378-PeCDD	0.057	0.229	0.64	B	0.6	0.6	0.3	1	0.6	0.6	0.3	0.7%	0.7%	0.3%
12378-PeCDF	0.179	0.716	LT		0.1			0.1	0.0			0.0%		
234678-HxCDF	0.311	1.244	LT	EMPC	0.2			0.1	0.0			0.0%		
23478-PeCDF	0.127	0.509	LT		0.1			1	0.1			0.1%		
2378-TCDD	0.567	2.266	LT		0.3			1	0.3			0.3%		
2378-TCDF	0.096	0.384	LT		0			1	0.0			0.0%		
OCDD	0.196	0.782	8.474	B	8.5	8.5	4.2	0	0	0	0	0%	0%	0%
OCDF	0.431	1.724	LT	EMPC	0.2			0.0001	0.0			0.0%		
PCB 189	1.39	5.56	LT		0.7			0.00001	0.0			0.0%		
PCB 156	1.89	7.56	10.4	B	10.4	10.4	5.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	1.94	7.76	2.72	B	2.7	2.7	0	0.0001	0.0	0.0		0.0%	0.0%	
PCB 105	0.68	2.72	42.8	B	42.8	42.8	21.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	1.79	7.16	3.8	B	3.8	3.8		0.00001	0.0	0.0		0.0%	0.0%	
PCB 114	0.662	2.648	3		3	3	3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	0.608	2.432	114	B	114	114	57	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	0.65	2.6	LT		0.3			0.00001	0.0			0.0%		
PCB 169	0.136	0.544	2.196		2.2	2.2	2.2	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.741	2.966	943.6		943.6	943.6	943.6	0.1	94.4	94.4	94.4	98.0%	98.5%	99.3%
PCB 77	1.067	4.268	11.62	B	11.6	11.6	5.8	0.05	0.6	0.6	0.3	0.6%	0.6%	0.3%
PCB 81	1.008	4.032	1.806	B	1.8	1.8		0.1	0.2	0.2		0.2%	0.2%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.1	0.7	0.3
All PCBs		95.1	95.1	94.7
All PCDDs/PCDFs/PCBs		96.2	95.8	95

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG32NE
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 32 NE

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.099	0.397	18.83		18.8	18.8	18.8	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	3.741	14.964	LT	EMPC	1.9			0.01	0.0			0.1%		
1234789-HpCDF	1.554	6.216	LT		0.8			0.01	0.0			0.0%		
123478-HxCDD	0.356	1.425	5.165		5.2	5.2	5.2	0.05	0.3	0.3	0.3	0.7%	0.8%	1.0%
123478-HxCDF	0.099	0.396	2.445		2.4	2.4	2.4	0.1	0.2	0.2	0.2	0.7%	0.8%	0.9%
123678-HxCDD	0.316	1.262	10.37		10.4	10.4	10.4	0.01	0.1	0.1	0.1	0.3%	0.3%	0.4%
123678-HxCDF	1.989	7.956	LT	D	1			0.1	0.1			0.3%		
123789-HxCDD	0.306	1.224	2.919		2.9	2.9	2.9	0.1	0.3	0.3	0.3	0.8%	1.0%	1.1%
123789-HxCDF	0.917	3.668	LT	EMPC	0.5			0.1	0.0			0.1%		
12378-PeCDD	8.453	33.812	LT	EMPC	4.2			1	4.2			12.0%		
12378-PeCDF	0.790	3.160	LT		0.4			0.1	0.0			0.1%		
234678-HxCDF	4.122	16.488	LT	D	2.1			0.1	0.2			0.6%		
23478-PeCDF	0.309	1.235	2.636		2.6	2.6	2.6	1	2.6	2.6	2.6	7.5%	8.6%	9.7%
2378-TCDD	1.033	4.132	2.207		2.2	2.2		1	2.2	2.2		6.3%	7.2%	
2378-TCDF	0.450	1.798	1.164	U	1.2	1.2		1	1.2	1.2		3.3%	3.8%	
OCDD	0.174	0.695	20.72		20.7	20.7	20.7	0	0	0	0	0%	0%	0%
OCDF	0.397	1.588	1.417		1.4	1.4		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	0.544	2.176	302		302	302	302	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	1.15	4.6	1890		1890	1890	1890	0.0001	0.2	0.2	0.2	0.5%	0.6%	0.7%
PCB 157	1.18	4.72	360		360	360	360	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	0.201	0.804	3100		3100	3100	3100	0.0001	0.3	0.3	0.3	0.9%	1.0%	1.1%
PCB 167	1.09	4.36	1040		1040	1040	1040	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.195	0.78	195		195	195	195	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	0.179	0.716	8050	C	8050	8050	8050	0.00001	0.1	0.1	0.1	0.2%	0.3%	0.3%
PCB 123	0.192	0.768	160		160	160	160	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.515	2.060	7.93		7.9	7.9	7.9	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	1.410	5.64	82.19		82.2	82.2	82.2	0.1	8.2	8.2	8.2	23.4%	27.0%	30.3%
PCB 77	5.104	20.416	250.6		250.6	250.6	250.6	0.05	12.5	12.5	12.5	35.7%	41.1%	46.2%
PCB 81	4.928	19.712	21.55		21.6	21.6	21.6	0.1	2.2	2.2	2.2	6.1%	7.1%	7.9%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		11.5	6.9	3.5
All PCBs		23.6	23.6	23.6
All PCDDs/PCDFs/PCBs		35.1	30.5	27.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG055
SAMPLE TYPE: American kestrel egg
LOCATION: QC, blank

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.351	5.404	LT	EMPC	0.7			0.001	0.0			0.0%		
1234678-HpCDF	0.089	0.358	LT		0			0.01	0.0			0.0%		
1234789-HpCDF	0.126	0.506	LT		0.1			0.01	0.0			0.0%		
123478-HxCDD	0.646	2.584	LT	EMPC	0.3			0.05	0.0			1.0%		
123478-HxCDF	0.048	0.193	LT		0			0.1	0.0			0.1%		
123678-HxCDD	0.077	0.307	LT		0			0.01	0.0			0.0%		
123678-HxCDF	0.407	1.628	LT	EMPC	0.2			0.1	0.0			1.2%		
123789-HxCDD	0.075	0.300	LT		0			0.1	0.0			0.2%		
123789-HxCDF	0.042	0.168	1.316		1.3	1.3	1.3	0.1	0.1	0.1	0.1	7.8%	17.6%	38.4%
12378-PeCDD	0.783	3.132	LT		0.4			1	0.4			23.3%		
12378-PeCDF	0.286	1.144	LT		0.1			0.1	0.0			0.9%		
234678-HxCDF	0.045	0.178	0.494	B	0.5	0.5	0.2	0.1	0.0	0.0	0.0	2.9%	6.6%	7.2%
23478-PeCDF	0.15	0.6	LT		0.1			1	0.1			4.5%		
2378-TCDD	0.444	1.776	LT		0.2			1	0.2			13.2%		
2378-TCDF	0.290	1.159	LT		0.1			1	0.1			8.6%		
OCDD	0.126	0.503	13.56		13.6	13.6	13.6	0	0	0	0	0%	0%	0%
OCDF	0.619	2.476	LT	EMPC	0.3			0.0001	0.0			0.0%		
PCB 189	1.3	5.2	LT		0.7			0.00001	0.0			0.0%		
PCB 156	1.15	4.6	11.2	B	11.2	11.2	5.6	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 157	1.91	7.64	LT		1			0.0001	0.0			0.0%		
PCB 105	0.627	2.508	38.3	B	38.3	38.3	19.2	0.0001	0.0	0.0	0.0	0.2%	0.5%	0.6%
PCB 167	1.09	4.36	5.39	B	5.4	5.4	2.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.611	2.444	2.43		2.4	2.4	0	0.0001	0.0	0.0		0.0%	0.0%	
PCB 118	0.578	2.312	95.9	B	95.9	95.9	48	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	0.618	2.472	LT		0.3			0.00001	0.0			0.0%		
PCB 169	0.162	0.648	LT		0.1			0.001	0.0			0.0%		
PCB 126	0.766	3.064	LT		0.4			0.1	0.0			2.3%		
PCB 77	1.452	5.808	7.338	B	7.3	7.3	3.7	0.05	0.4	0.4	0.2	21.8%	48.9%	53.5%
PCB 81	1.384	5.536	1.957	B	2	2		0.1	0.2	0.2		11.6%	26.1%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.0	0.2	0.2
All PCBs		0.6	0.6	0.2
All PCDDs/PCDFs/PCBs		1.6	0.8	0.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG056
SAMPLE TYPE: American kestrel egg
LOCATION: QC, blank

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.038	0.154	1.189	B	1.2	1.2	0.6	0.001	0.0	0.0	0.0	0.1%	0.1%	0.2%
1234678-HpCDF	0.366	1.465	LT		0.2			0.01	0.0			0.1%		
1234789-HpCDF	0.545	2.178	LT		0.3			0.01	0.0			0.1%		
123478-HxCDD	0.150	0.600	0.684		0.7	0.7	0.7	0.05	0.0	0.0	0.0	1.5%	2.1%	13.9%
123478-HxCDF	0.172	0.688	LT		0.1			0.1	0.0			0.4%		
123678-HxCDD	0.130	0.518	LT		0.1			0.01	0.0			0.0%		
123678-HxCDF	0.419	1.676	LT	EMPC	0.2			0.1	0.0			0.9%		
123789-HxCDD	0.127	0.509	LT		0.1			0.1	0.0			0.3%		
123789-HxCDF	1.56	6.24	LT	EMPC	0.8			0.1	0.1			3.4%		
12378-PeCDD	0.355	1.421	0.809	B	0.8	0.8		1	0.8	0.8		35.6%	50.5%	
12378-PeCDF	0.261	1.044	LT		0.1			0.1	0.0			0.6%		
234678-HxCDF	0.554	2.216	LT	EMPC	0.3			0.1	0.0			1.2%		
23478-PeCDF	0.281	1.124	LT		0.1			1	0.1			6.2%		
2378-TCDD	0.622	2.488	LT		0.3			1	0.3			13.7%		
2378-TCDF	0.116	0.465	LT		0.1			1	0.1			2.6%		
OCDD	0.205	0.818	8.321	B	8.3	8.3	4.2	0	0	0	0	0%	0%	0%
OCDF	0.180	0.722	0.616	B	0.6	0.6		0.0001	0.0	0.0		0.0%	0.0%	
PCB 189	2.26	9.04	LT		1.1			0.00001	0.0			0.0%		
PCB 156	1.43	5.72	12.9	B	12.9	12.9	6.5	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.3%
PCB 157	1.47	5.88	LT		0.7			0.0001	0.0			0.0%		
PCB 105	0.565	2.26	44.7	B	44.7	44.7	22.4	0.0001	0.0	0.0	0.0	0.2%	0.3%	0.9%
PCB 167	1.35	5.4	4.18	B	4.2	4.2		0.00001	0.0	0.0		0.0%	0.0%	
PCB 114	0.55	2.2	LT		0.3			0.0001	0.0			0.0%		
PCB 118	0.513	2.052	114	B	114	114	57	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 123	6.69	26.76	LT	EMPC	3.3			0.00001	0.0			0.0%		
PCB 169	0.588	2.352	LT	EMPC	0.3			0.001	0.0			0.0%		
PCB 126	1.051	4.204	1.516	B	1.5	1.5		0.1	0.2	0.2		6.7%	9.5%	
PCB 77	1.122	4.488	8.345	B	8.3	8.3	4.2	0.05	0.4	0.4	0.2	18.4%	26.0%	84.5%
PCB 81	1.112	4.448	1.834	B	1.8	1.8		0.1	0.2	0.2		8.1%	11.4%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		1.5	0.8	0
All PCBs		0.8	0.8	0.2
All PCDDs/PCDFs/PCBs		2.3	1.6	0.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG30NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 30 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.024	0.096	13.81		13.8	13.8	13.8	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	1.203	4.812	1.691		1.7	1.7		0.01	0.0	0.0		0.0%	0.0%	0.0%
1234789-HpCDF	1.654	6.616	LT		0.8			0.01	0.0			0.0%	0.0%	0.0%
123478-HxCDD	0.492	1.968	4.324		4.3	4.3	4.3	0.05	0.2	0.2	0.2	0.2%	0.3%	0.3%
123478-HxCDF	0.073	0.290	1.366		1.4	1.4	1.4	0.1	0.1	0.1	0.1	0.2%	0.2%	0.2%
123678-HxCDD	0.421	1.684	7.766		7.8	7.8	7.8	0.01	0.1	0.1	0.1	0.1%	0.1%	0.1%
123678-HxCDF	1.418	5.672	LT	D	0.7			0.1	0.1			0.1%	0.0%	0.0%
123789-HxCDD	0.415	1.659	1.458		1.5	1.5		0.1	0.1	0.1		0.2%	0.2%	0.0%
123789-HxCDF	0.069	0.278	0.998	B	1	1	0.5	0.1	0.1	0.1	0.1	0.1%	0.1%	0.1%
12378-PeCDD	0.115	0.459	6.744		6.7	6.7	6.7	1	6.7	6.7	6.7	7.8%	7.8%	8.1%
12378-PeCDF	0.141	0.564	1.083		1.1	1.1	1.1	0.1	0.1	0.1	0.1	0.1%	0.1%	0.1%
234678-HxCDF	14.630	58.520	LT	D	7.3			0.1	0.7			0.8%	0.0%	0.0%
23478-PeCDF	0.105	0.419	6.396		6.4	6.4	6.4	1	6.4	6.4	6.4	7.4%	7.4%	7.7%
2378-TCDD	0.314	1.255	1.384		1.4	1.4	1.4	1	1.4	1.4	1.4	1.6%	1.6%	1.7%
2378-TCDF	0.268	1.070	5.609	U	5.6	5.6	2.8	1	5.6	5.6	2.8	6.5%	6.5%	3.4%
OCDD	0.071	0.285	43		43	43	43	0	0	0	0	0%	0%	0%
OCDF	0.143	0.571	3.143		3.1	3.1	3.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	14.3	57.2	1720		1720	1720	1720	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	0.185	0.74	11300	C	11300	11300	11300	0.0001	1.1	1.1	1.1	1.3%	1.3%	1.4%
PCB 157	0.19	0.76	1290		1290	1290	1290	0.0001	0.1	0.1	0.1	0.1%	0.2%	0.2%
PCB 105	2.36	9.44	9700	C	9700	9700	9700	0.0001	1.0	1.0	1.0	1.1%	1.1%	1.2%
PCB 167	0.176	0.704	3430	C	3430	3430	3430	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	2.3	9.2	467		467	467	467	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	2.16	8.64	24300	S	24300	24300	24300	0.00001	0.2	0.2	0.2	0.3%	0.3%	0.3%
PCB 123			427		427	427	427	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.185	4.740	25.11		25.1	25.1	25.1	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.220	0.879	352.8		352.8	352.8	352.8	0.1	35.3	35.3	35.3	40.7%	41.0%	42.5%
PCB 77	6.193	24.772	488.7		488.7	488.7	488.7	0.05	24.4	24.4	24.4	28.2%	28.4%	29.5%
PCB 81	5.573	22.292	27.01		27	27	27	0.1	2.7	2.7	2.7	3.1%	3.1%	3.3%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		21.7	20.9	17.9
All PCBs		65	65	65
All PCDDs/PCDFs/PCBs		86.7	85.9	82.9

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: AKEG27NW
SAMPLE TYPE: American kestrel egg
LOCATION: On-post, Section 27 NW

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.073	0.292	44.58		44.6	44.6	44.6	0.001	0.0	0.0	0.0	0.1%	0.1%	0.2%
1234678-HpCDF	1.235	4.940	8.895		8.9	8.9	8.9	0.01	0.1	0.1	0.1	0.3%	0.3%	0.3%
1234789-HpCDF	1.714	6.856	LT		0.9			0.01	0.0			0.0%		
123478-HxCDD	0.331	1.322	11.56		11.6	11.6	11.6	0.05	0.6	0.6	0.6	1.8%	1.9%	2.1%
123478-HxCDF	0.050	0.200	2.945		2.9	2.9	2.9	0.1	0.3	0.3	0.3	0.9%	1.0%	1.1%
123678-HxCDD	0.274	1.098	21.1		21.1	21.1	21.1	0.01	0.2	0.2	0.2	0.7%	0.7%	0.8%
123678-HxCDF	0.044	0.174	4.598		4.6	4.6	4.6	0.1	0.5	0.5	0.5	1.4%	1.5%	1.7%
123789-HxCDD	0.274	1.095	10.23		10.2	10.2	10.2	0.1	1.0	1.0	1.0	3.2%	3.3%	3.7%
123789-HxCDF	0.045	0.182	0.952	B	1	1	0.5	0.1	0.1	0.1	0.0	0.3%	0.3%	0.2%
12378-PeCDD	0.635	2.541	15.18		15.2	15.2	15.2	1	15.2	15.2	15.2	47.3%	49.2%	54.7%
12378-PeCDF	0.287	1.149	1.242		1.2	1.2	1.2	0.1	0.1	0.1	0.1	0.4%	0.4%	0.4%
234678-HxCDF	14.280	57.120	LT	D	7.1			0.1	0.7			2.2%		
23478-PeCDF	0.222	0.890	3.066		3.1	3.1	3.1	1	3.1	3.1	3.1	9.6%	9.9%	11.0%
2378-TCDD	1.037	4.148	2.562		2.6	2.6		1	2.6	2.6		8.0%	8.3%	
2378-TCDF	0.982	3.928	LT	EMPC	0.5			1	0.5			1.5%		
OCDD	0.295	1.181	43.94		43.9	43.9	43.9	0	0	0	0	0%	0%	0%
OCDF	0.257	1.028	2.982		3	3	3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	1.38	5.52	328		328	328	328	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 156	0.675	2.7	1220		1220	1220	1220	0.0001	0.1	0.1	0.1	0.4%	0.4%	0.4%
PCB 157	0.693	2.772	258		258	258	258	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 105	1.26	5.04	925		925	925	925	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 167	0.639	2.556	695		695	695	695	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	1.23	4.92	44.2		44.2	44.2	44.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	1.16	4.64	2500		2500	2500	2500	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123			56		56	56	56	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.045	4.180	8.177		8.2	8.2	8.2	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	1.236	4.944	44.36		44.4	44.4	44.4	0.1	4.4	4.4	4.4	13.8%	14.4%	16.0%
PCB 77	3.048	12.192	38.57		38.6	38.6	38.6	0.05	1.9	1.9	1.9	6.0%	6.2%	6.9%
PCB 81	2.956	11.824	4.791		4.8	4.8		0.1	0.5	0.5		1.5%	1.6%	

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		25.0	23.8	21.2
All PCBs		7.1	7.1	6.7
All PCDDs/PCDFs/PCBs		32.1	30.9	27.8

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: 99FD305
SAMPLE TYPE: Feed
LOCATION: N/A

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.365	1.460	LT	EMPC	0.2			0.001	0.0			0.0%	0.0%	0.0%
1234678-HpCDF	0.016	0.065	LT		0			0.01	0.0			0.0%	0.0%	0.0%
1234789-HpCDF	0.025	0.098	LT		0			0.01	0.0			0.0%	0.0%	0.0%
123478-HxCDD	0.182	0.728	LT	EMPC	0.1			0.05	0.0			0.7%	0.0%	0.0%
123478-HxCDF	0.014	0.057	LT		0			0.1	0.0			0.1%	0.0%	0.0%
123678-HxCDD	0.020	0.079	LT		0			0.01	0.0			0.0%	0.0%	0.0%
123678-HxCDF	0.111	0.444	LT	EMPC	0.1			0.1	0.0			0.9%	0.0%	0.0%
123789-HxCDD	0.019	0.077	LT		0			0.1	0.0			0.1%	0.0%	0.0%
123789-HxCDF	0.017	0.069	0.368	B	0.4	0.4	0.2	0.1	0.0	0.0	0.0	5.7%	8.8%	21.0%
12378-PeCDD	0.101	0.403	0.245	B	0.2	0.2		1	0.2	0.2		37.9%	58.3%	0.0%
12378-PeCDF	0.064	0.256	LT		0			0.1	0.0			0.5%	0.0%	0.0%
234678-HxCDF	0.102	0.408	LT	EMPC	0.1			0.1	0.0			0.8%	0.0%	0.0%
23478-PeCDF	0.044	0.176	LT		0			1	0.0			3.4%	0.0%	0.0%
2378-TCDD	0.208	0.833	LT		0.1			1	0.1			16.1%	0.0%	0.0%
2378-TCDF	0.088	0.351	LT		0			1	0.0			6.8%	0.0%	0.0%
OCDD	0.107	0.428	2.971	B	3	3	1.5	0	0	0	0	0%	0%	0%
OCDF	0.101	0.403	LT		0.1			0.0001	0.0			0.0%	0.0%	0.0%
PCB 189	0.401	1.604	LT		0.2			0.00001	0.0			0.0%	0.0%	0.0%
PCB 156	0.273	1.092	5.61	B	5.6	5.6	2.8	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.3%
PCB 157	1.25	5	LT	EMPC	0.6			0.0001	0.0			0.0%	0.0%	0.0%
PCB 105	0.21	0.84	14.2	B	14.2	14.2	7.1	0.0001	0.0	0.0	0.0	0.2%	0.3%	0.8%
PCB 167	0.258	1.032	2.28	B	2.3	2.3	1.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.693	2.772	LT		0.3			0.0001	0.0			0.0%	0.0%	0.0%
PCB 118	0.197	0.788	33.6	B	33.6	33.6	16.8	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.2%
PCB 123	0.21	0.84	LT		0.1			0.00001	0.0			0.0%	0.0%	0.0%
PCB 169	0.069	0.275	LT		0			0.001	0.0			0.0%	0.0%	0.0%
PCB 126	0.202	0.806	LT		0.1			0.1	0.0			1.6%	0.0%	0.0%
PCB 77	0.490	1.960	2.72	B	2.7	2.7	1.4	0.05	0.1	0.1	0.1	21.1%	32.4%	77.7%
PCB 81	0.499	1.996	LT		0.2			0.1	0.0			3.9%	0.0%	0.0%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		0.4	0.2	0
All PCBs		0.2	0.1	0.1
All PCDDs/PCDFs/PCBs		0.6	0.3	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

AMERICAN KESTREL EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NAME: 99FD306
SAMPLE TYPE: Feed
LOCATION: N/A

Analyte	Analytical Limits		Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.006	0.026	0.565	B	0.6	0.6	0.3	0.001	0.0	0.0	0.0	0.1%	0.5%	0.5%
1234678-HpCDF	0.093	0.373	LT		0			0.01	0.0			0.1%	0.0%	0.0%
1234789-HpCDF	0.145	0.582	LT		0.1			0.01	0.0			0.2%	0.0%	0.0%
123478-HxCDD	0.019	0.076	0.112	B	0.1	0.1	0.1	0.05	0.0	0.0	0.0	1.5%	4.7%	4.7%
123478-HxCDF	0.01	0.04	LT		0			0.1	0.0			0.1%	0.0%	0.0%
123678-HxCDD	0.017	0.068	LT		0			0.01	0.0			0.0%	0.0%	0.0%
123678-HxCDF	0.107	0.428	LT	EMPC	0.1			0.1	0.0			1.4%	0.0%	0.0%
123789-HxCDD	0.016	0.066	LT		0			0.1	0.0			0.2%	0.0%	0.0%
123789-HxCDF	0.338	1.352	LT	EMPC	0.2			0.1	0.0			4.4%	0.0%	0.0%
12378-PeCDD	0.177	0.708	LT		0.1			1	0.1			23.0%	0.0%	0.0%
12378-PeCDF	0.019	0.077	LT		0			0.1	0.0			0.3%	0.0%	0.0%
234678-HxCDF	0.138	0.552	LT	EMPC	0.1			0.1	0.0			1.8%	0.0%	0.0%
23478-PeCDF	0.014	0.055	LT		0			1	0.0			1.8%	0.0%	0.0%
2378-TCDD	0.169	0.675	LT		0.1			1	0.1			22.0%	0.0%	0.0%
2378-TCDF	0.034	0.136	LT		0			1	0.0			4.4%	0.0%	0.0%
OCDD	0.079	0.317	3.756	B	3.8	3.8	1.9	0	0	0	0	0%	0%	0%
OCDF	0.054	0.218	0.376	B	0.4	0.4	0.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 189	0.365	1.46	LT		0.2			0.00001	0.0			0.0%	0.0%	0.0%
PCB 156	0.297	1.188	2.91	B	2.9	2.9	1.5	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 157	0.764	3.056	LT	EMPC	0.4			0.0001	0.0			0.0%	0.0%	0.0%
PCB 105	0.138	0.552	10.5	B	10.5	10.5	5.3	0.0001	0.0	0.0	0.0	0.3%	0.9%	0.9%
PCB 167	0.282	1.128	1.37	B	1.4	1.4	0.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.134	0.536	LT		0.1			0.0001	0.0			0.0%	0.0%	0.0%
PCB 118	0.13	0.52	26.8	B	26.8	26.8	13.4	0.00001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 123	0.139	0.556	LT		0.1			0.00001	0.0			0.0%	0.0%	0.0%
PCB 169	0.048	0.192	LT		0			0.001	0.0			0.0%	0.0%	0.0%
PCB 126	0.315	1.259	LT		0.2			0.1	0.0			4.1%	0.0%	0.0%
PCB 77	0.436	1.746	2.232	B	2.2	2.2	1.1	0.05	0.1	0.1	0.1	29.0%	93.4%	93.4%
PCB 81	0.391	1.562	LT		0.2			0.1	0.0			5.1%	0.0%	0.0%

Total		TEQs		
		Full	Partial	Quant
All PCDDs/PCDFs		0.2	0	0
All PCBs		0.2	0.1	0.1
All PCDDs/PCDFs/PCBs		0.4	0.1	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

Appendix C3

Great Horned Owl Livers

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 95FGH162
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 21 NE of RMA

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.183	0.731	54.987		55	55	55	0.001	0.1	0.1	0.1	0.2%	0.2%	0.2%
1234678-HpCDF	2.855	11.420	23.756		23.8	23.8	23.8	0.01	0.2	0.2	0.2	0.8%	0.9%	0.9%
1234789-HpCDF	4.201	16.804	LT		2.1			0.01	0.0			0.1%		
123478-HxCDD	0.283	1.131	15.017		15	15	15	0.05	0.8	0.8	0.8	2.6%	2.7%	2.7%
123478-HxCDF	0.259	1.034	16.848		16.8	16.8	16.8	0.1	1.7	1.7	1.7	5.8%	6.1%	6.1%
123678-HxCDD	0.254	1.016	33.242		33.2	33.2	33.2	0.01	0.3	0.3	0.3	1.1%	1.2%	1.2%
123678-HxCDF	0.219	0.878	8.539		8.5	8.5	8.5	0.1	0.9	0.9	0.9	2.9%	3.1%	3.1%
123789-HxCDD	0.252	1.007	4.275		4.3	4.3	4.3	0.1	0.4	0.4	0.4	1.5%	1.6%	1.6%
123789-HxCDF	0.809	3.236	LT	EMPC	0.4			0.1	0.0			0.1%		
12378-PeCDD	0.174	0.698	8.222		8.2	8.2	8.2	1	8.2	8.2	8.2	28.4%	29.6%	29.9%
12378-PeCDF	0.284	1.136	LT	EMPC	0.1			0.1	0.0			0.0%		
234678-HxCDF	7.214	28.856	LT	D	3.6			0.1	0.4			1.2%		
23478-PeCDF	0.005	0.020	8.001		8	8	8	1	8.0	8.0	8.0	27.7%	28.9%	29.2%
2378-TCDD	1.358	5.432	LT	EMPC	0.7			1	0.7			2.4%		
2378-TCDF	0.094	0.374	0.336	U	0.3	0.3		1	0.3	0.3		1.0%	1.1%	
OCDD	0.073	0.291	38.719		38.7	38.7	38.7	0	0	0	0	0%	0%	0%
OCDF	0.157	0.626	12.046		12	12	12	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	22.7	90.8	675		675	675	675	0.0001	0.1	0.1	0.1	0.2%	0.2%	0.2%
PCB 114	30.9	123.6	125		125	125	125	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	20.6	82.4	2540		2540	2540	2540	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	23.7	94.8	LT		11.9			0.00001	0.0			0.0%		
PCB 126	0.378	1.511	60.729		60.7	60.7	60.7	0.1	6.1	6.1	6.1	21.0%	21.9%	22.2%
PCB 156	12.1	48.4	416		416	416	416	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 157	11.7	46.8	80.9		80.9	80.9	80.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	13.2	52.8	128		128	128	128	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.401	1.605	59.46		59.5	59.5	59.5	0.001	0.1	0.1	0.1	0.2%	0.2%	0.2%
PCB 189	9.27	37.08	34.6		34.6	34.6		0.00001	0.0	0.0		0.0%	0.0%	
PCB 77	0.268	1.072	10.044		10	10	10	0.05	0.5	0.5	0.5	1.7%	1.8%	1.8%
PCB 81	0.280	1.121	1.567		1.6	1.6	1.6	0.1	0.2	0.2	0.2	0.6%	0.6%	0.6%

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		22.0	20.8	20.5
All PCBs		6.9	6.9	6.9
All PCDDs/PCDFs/PCBs		28.9	27.7	27.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH002
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: On-post, Off-post Groundwater Treatment Plant

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.963	7.851	1116.424		139.6	139.6	139.6	0.001	0.1	0.1	0.1	0.1%	0.1%	0.1%
1234678-HpCDF	649.846	2599.384	LT	D	40.6			0.01	0.4			0.4%		
1234789-HpCDF	42.710	170.841	LT		2.7			0.01	0.0			0.0%		
123478-HxCDD	6.729	26.916	159.945		20	20	20	0.05	1.0	1.0	1.0	1.0%	1.0%	1.0%
123478-HxCDF	0.945	3.778	528.512		66.1	66.1	66.1	0.1	6.6	6.6	6.6	6.5%	6.6%	6.6%
123678-HxCDD	6.212	24.848	662.983		82.9	82.9	82.9	0.01	0.8	0.8	0.8	0.8%	0.8%	0.8%
123678-HxCDF	0.824	3.297	124.236		15.5	15.5	15.5	0.1	1.6	1.6	1.6	1.5%	1.5%	1.5%
123789-HxCDD	6.093	24.372	74.522		9.3	9.3	9.3	0.1	0.9	0.9	0.9	0.9%	0.9%	0.9%
123789-HxCDF	0.882	3.527	3.259		0.4	0.4		0.1	0.0	0.0		0.0%	0.0%	
12378-PeCDD	1.729	6.916	120.004		15	15	15	1	15.0	15.0	15.0	14.8%	14.9%	14.9%
12378-PeCDF	0.397	1.586	14.309		1.8	1.8	1.8	0.1	0.2	0.2	0.2	0.2%	0.2%	0.2%
234678-HxCDF	0.825	3.300	54.033		6.8	6.8	6.8	0.1	0.7	0.7	0.7	0.7%	0.7%	0.7%
23478-PeCDF	0.335	1.339	163.568		20.4	20.4	20.4	1	20.4	20.4	20.4	20.2%	20.2%	20.3%
2378-TCDD	0.794	3.178	12.49		1.6	1.6	1.6	1	1.6	1.6	1.6	1.6%	1.6%	1.6%
2378-TCDF	0.750	2.999	3.536	U	0.4	0.4	0.2	1	0.4	0.4	0.2	0.4%	0.4%	0.2%
OCDD	0.743	2.971	487.411		60.9	60.9	60.9	0	0	0	0	0%	0%	0%
OCDF	9.811	39.244	18.824		2.4			0.0001	0.0			0.0%		
PCB 105	137	548	37800		4725	4725	4725	0.0001	0.5	0.5	0.5	0.5%	0.5%	0.5%
PCB 114	186	744	5010		626.3	626.3	626.3	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 118	124	496	160000	C	20000	20000	20000	0.00001	0.2	0.2	0.2	0.2%	0.2%	0.2%
PCB 123	143	572	1260		157.5	157.5	157.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	21.498	85.994	3981.417		497.7	497.7	497.7	0.1	49.8	49.8	49.8	49.2%	49.4%	49.5%
PCB 156	172	688	24300		3037.5	3037.5	3037.5	0.0001	0.3	0.3	0.3	0.3%	0.3%	0.3%
PCB 157	165	660	4310		538.8	538.8	538.8	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 167	187	748	11500		1437.5	1437.5	1437.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	6.6289	26.5156	2134.275		266.8	266.8	266.8	0.001	0.3	0.3	0.3	0.3%	0.3%	0.3%
PCB 189	51.6	206.4	2690		336.3	336.3	336.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	6.103	24.411	42.908		5.4	5.4	5.4	0.05	0.3	0.3	0.3	0.3%	0.3%	0.3%
PCB 81	3.488	13.952	LT		0.2			0.1	0.0			0.0%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		49.8	49.4	49.1
All PCBs		51.4	51.4	51.4
All PCDDs/PCDFs/PCBs		101.2	100.8	100.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH007
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: On-post, Section 2 NE (Building 242)

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.070	4.278	2396.409		299.6	299.6	299.6	0.001	0.3	0.3	0.3	0.1%	0.1%	0.1%
1234678-HpCDF	661.203	2644.812	LT	D	41.3			0.01	0.4			0.1%		
1234789-HpCDF	12.421	49.682	349.926		43.7	43.7	43.7	0.01	0.4	0.4	0.4	0.1%	0.1%	0.1%
123478-HxCDD	1.777	7.108	595.137		74.4	74.4	74.4	0.05	3.7	3.7	3.7	1.1%	1.1%	1.1%
123478-HxCDF	0.823	3.290	4189.747		523.7	523.7	523.7	0.1	52.4	52.4	52.4	15.1%	15.1%	15.1%
123678-HxCDD	1.585	6.340	1723.943		215.5	215.5	215.5	0.01	2.2	2.2	2.2	0.6%	0.6%	0.6%
123678-HxCDF	0.723	2.892	2003.890		250.5	250.5	250.5	0.1	25.1	25.1	25.1	7.2%	7.2%	7.2%
123789-HxCDD	1.572	6.290	145.645		18.2	18.2	18.2	0.1	1.8	1.8	1.8	0.5%	0.5%	0.5%
123789-HxCDF	0.861	3.446	86.288		10.8	10.8	10.8	0.1	1.1	1.1	1.1	0.3%	0.3%	0.3%
12378-PeCDD	0.072	0.289	254.342		31.8	31.8	31.8	1	31.8	31.8	31.8	9.2%	9.2%	9.2%
12378-PeCDF	83.327	333.308	LT	D	5.2			0.1	0.5			0.1%		
234678-HxCDF	0.761	3.045	362.959		45.4	45.4	45.4	0.1	4.5	4.5	4.5	1.3%	1.3%	1.3%
23478-PeCDF	0.082	0.329	1351.614		169	169	169	1	169.0	169.0	169.0	48.6%	48.8%	48.8%
2378-TCDD	0.647	2.589	10.842		1.4	1.4	1.4	1	1.4	1.4	1.4	0.4%	0.4%	0.4%
2378-TCDF	0.627	2.507	4.256	U	0.5	0.5	0.3	1	0.5	0.5	0.3	0.1%	0.1%	0.1%
OCDD	0.251	1.003	1106.501		138.3	138.3	138.3	0	0	0	0	0%	0%	0%
OCDF	1.993	7.974	142.986		17.9	17.9	17.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	64	256	15000		1875	1875	1875	0.0001	0.2	0.2	0.2	0.1%	0.1%	0.1%
PCB 114	87.3	349.2	7260		907.5	907.5	907.5	0.0001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 118	58.2	232.8	85400		10675	10675	10675	0.00001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 123	67.1	268.4	769		96.1	96.1	96.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	2.217	8.868	4065.555		508.2	508.2	508.2	0.1	50.8	50.8	50.8	14.6%	14.7%	14.7%
PCB 156	74.9	299.6	33500		4187.5	4187.5	4187.5	0.0001	0.4	0.4	0.4	0.1%	0.1%	0.1%
PCB 157	72.3	289.2	4930	C	616.3	616.3	616.3	0.0001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 167	81.7	326.8	3650		456.3	456.3	456.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	2.547	10.188	4041.235	C	505.2	505.2	505.2	0.001	0.5	0.5	0.5	0.1%	0.1%	0.1%
PCB 189	30.8	123.2	1250		156.3	156.3	156.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	3.701	14.804	21.371		2.7	2.7	2.7	0.05	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 81	3.616	14.464	LT		0.1			0.1	0.0			0.0%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		295.1	294.2	294.0
All PCBs		52.3	52.3	52.3
All PCDDs/PCDFs/PCBs		347.4	346.5	346.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH017
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: On-post, Section 1 NE (south of Hydra Shed)

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	1.102	4.408	442.323		55.3	55.3	55.3	0.001	0.1	0.1	0.1	0.1%	0.1%	0.1%
1234678-HpCDF	229.278	917.112	LT	D	14.3			0.01	0.1			0.1%		
1234789-HpCDF	36.815	147.259	41.027		5.1	5.1		0.01	0.1	0.1		0.1%	0.1%	
123478-HxCDD	1.962	7.847	180.8		22.6	22.6	22.6	0.05	1.1	1.1	1.1	1.1%	1.1%	1.1%
123478-HxCDF	0.781	3.125	871.275		108.9	108.9	108.9	0.1	10.9	10.9	10.9	10.8%	10.8%	10.8%
123678-HxCDD	1.745	6.979	677.615		84.7	84.7	84.7	0.01	0.8	0.8	0.8	0.8%	0.8%	0.8%
123678-HxCDF	0.680	2.721	386.196		48.3	48.3	48.3	0.1	4.8	4.8	4.8	4.8%	4.8%	4.8%
123789-HxCDD	1.736	6.945	52.644		6.6	6.6	6.6	0.1	0.7	0.7	0.7	0.7%	0.7%	0.7%
123789-HxCDF	0.746	2.985	14.172		1.8	1.8	1.8	0.1	0.2	0.2	0.2	0.2%	0.2%	0.2%
12378-PeCDD	0.583	2.331	182.317		22.8	22.8	22.8	1	22.8	22.8	22.8	22.5%	22.6%	22.6%
12378-PeCDF	9.577	38.308	LT	D	0.6			0.1	0.1			0.1%		
234678-HxCDF	0.679	2.718	69.132		8.6	8.6	8.6	0.1	0.9	0.9	0.9	0.8%	0.9%	0.9%
23478-PeCDF	0.030	0.121	242.244		30.3	30.3	30.3	1	30.3	30.3	30.3	29.9%	30.0%	30.1%
2378-TCDD	0.612	2.448	10.564		1.3	1.3	1.3	1	1.3	1.3	1.3	1.3%	1.3%	1.3%
2378-TCDF	0.688	2.753	1.610	U	0.2	0.2		1	0.2	0.2		0.2%	0.2%	
OCDD	0.517	2.067	187.078		23.4	23.4	23.4	0	0	0	0	0%	0%	0%
OCDF	6.116	24.464	19.927		2.5	2.5		0.0001	0.0	0.0		0.0%	0.0%	
PCB 105	3.400	13.600	12000		1500	1500	1500	0.0001	0.2	0.2	0.2	0.1%	0.1%	0.1%
PCB 114	4.900	19.600	1900		237.5	237.5	237.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	3.550	14.200	40400	C	5050	5050	5050	0.00001	0.1	0.1	0.1	0.0%	0.1%	0.1%
PCB 123	3.870	15.480	197		24.6	24.6	24.6	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	2.867	11.468	2092.744		261.6	261.6	261.6	0.1	26.2	26.2	26.2	25.8%	25.9%	26.0%
PCB 156	28.600	114.400	15100	C	1887.5	1887.5	1887.5	0.0001	0.2	0.2	0.2	0.2%	0.2%	0.2%
PCB 157	27.900	111.600	2740		342.5	342.5	342.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	31.100	124.400	3260		407.5	407.5	407.5	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	2.969	11.876	1878		234.7	234.7	234.7	0.001	0.2	0.2	0.2	0.2%	0.2%	0.2%
PCB 189	5.700	22.800	2010		251.3	251.3	251.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	2.609	10.436	11.397		1.4	1.4	1.4	0.05	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 81	2.556	10.224	LT		0.2			0.1	0.0			0.0%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		74.3	74.1	73.9
All PCBs		26.9	26.9	26.9
All PCDDs/PCDFs/PCBs		101.2	101.0	100.8

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH026
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 1 (Building 252)

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.210	0.842	139.77		139.8	139.8	139.8	0.001	0.1	0.1	0.1	0.2%	0.2%	0.2%
1234678-HpCDF	0.498	1.993	105.56		105.6	105.6	105.6	0.01	1.1	1.1	1.1	1.4%	1.5%	1.5%
1234789-HpCDF	0.679	2.715	21.252		21.3	21.3	21.3	0.01	0.2	0.2	0.2	0.3%	0.3%	0.3%
123478-HxCDD	0.070	0.280	9.297		9.3	9.3	9.3	0.05	0.5	0.5	0.5	0.6%	0.6%	0.7%
123478-HxCDF	0.137	0.548	63.435		63.4	63.4	63.4	0.1	6.3	6.3	6.3	8.3%	8.7%	8.9%
123678-HxCDD	0.067	0.268	28.011		28	28	28	0.01	0.3	0.3	0.3	0.4%	0.4%	0.4%
123678-HxCDF	0.117	0.469	28.493		28.5	28.5	28.5	0.1	2.9	2.9	2.9	3.8%	3.9%	4.0%
123789-HxCDD	0.065	0.259	4.248		4.2	4.2	4.2	0.1	0.4	0.4	0.4	0.6%	0.6%	0.6%
123789-HxCDF	0.146	0.586	2.36		2.4	2.4	2.4	0.1	0.2	0.2	0.2	0.3%	0.3%	0.3%
12378-PeCDD	5.277	21.108	LT	EMPC	2.6			1	2.6			3.4%		
12378-PeCDF	2.791	11.164	LT	EMPC	1.4			0.1	0.1			0.2%		
234678-HxCDF	13.009	52.036	LT	D	6.5			0.1	0.7			0.9%		
23478-PeCDF	0.079	0.316	23.542		23.5	23.5	23.5	1	23.5	23.5	23.5	30.9%	32.4%	33.0%
2378-TCDD	0.358	1.431	0.605		0.6	0.6		1	0.6	0.6		0.8%	0.8%	
2378-TCDF	0.148	0.591	1.289	U	1.3	1.3	0.6	1	1.3	1.3	0.6	1.7%	1.8%	0.8%
OCDD	0.296	1.183	206.092		206.1	206.1	206.1	0	0	0	0	0%	0%	0%
OCDF	0.158	0.632	54.304		54.3	54.3	54.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	4.17	16.68	356		356	356	356	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 114	6	24	59.1		59.1	59.1	59.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	4.35	17.4	1050		1050	1050	1050	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	4.74	18.96	8.2		8.2	8.2		0.00001	0.0	0.0		0.0%	0.0%	
PCB 126	0.801	3.204	346.61		346.6	346.6	346.6	0.1	34.7	34.7	34.7	45.6%	47.7%	48.7%
PCB 156	2.3	9.2	286		286	286	286	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	2.24	8.96	39.2		39.2	39.2	39.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	2.5	10	49.7		49.7	49.7	49.7	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.253	1.011	100.07		100.1	100.1	100.1	0.001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 189	0.752	3.008	36.6		36.6	36.6	36.6	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.801	3.205	4.65		4.7	4.7	4.7	0.05	0.2	0.2	0.2	0.3%	0.3%	0.3%
PCB 81	0.757	3.030	1.01		1	1		0.1	0.1	0.1		0.1%	0.1%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		40.8	37.4	36.1
All PCBs		35.2	35.2	35.1
All PCDDs/PCDFs/PCBs		76.0	72.6	71.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH027
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 1 (Building 252)

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.044	0.174	114.915		114.9	114.9	114.9	0.001	0.1	0.1	0.1	0.1%	0.1%	0.1%
1234678-HpCDF	0.570	2.278	96.723		96.7	96.7	96.7	0.01	1.0	1.0	1.0	1.2%	1.2%	1.2%
1234789-HpCDF	0.927	3.707	41.152		41.2	41.2	41.2	0.01	0.4	0.4	0.4	0.5%	0.5%	0.5%
123478-HxCDD	0.015	0.059	11.054		11.1	11.1	11.1	0.05	0.6	0.6	0.6	0.7%	0.7%	0.7%
123478-HxCDF	0.584	2.336	154.179		154.2	154.2	154.2	0.1	15.4	15.4	15.4	18.6%	18.6%	19.0%
123678-HxCDD	0.013	0.053	28.095		28.1	28.1	28.1	0.01	0.3	0.3	0.3	0.3%	0.3%	0.3%
123678-HxCDF	0.480	1.920	58.543		58.5	58.5	58.5	0.1	5.9	5.9	5.9	7.1%	7.1%	7.2%
123789-HxCDD	0.013	0.053	4.966		5	5	5	0.1	0.5	0.5	0.5	0.6%	0.6%	0.6%
123789-HxCDF	0.622	2.489	3.538		3.5	3.5	3.5	0.1	0.4	0.4	0.4	0.4%	0.4%	0.4%
12378-PeCDD	0.136	0.544	4.711		4.7	4.7	4.7	1	4.7	4.7	4.7	5.7%	5.7%	5.8%
12378-PeCDF	0.175	0.700	3.504		3.5	3.5	3.5	0.1	0.4	0.4	0.4	0.4%	0.4%	0.4%
234678-HxCDF	0.559	2.237	13.088		13.1	13.1	13.1	0.1	1.3	1.3	1.3	1.6%	1.6%	1.6%
23478-PeCDF	0.136	0.544	24.022		24	24	24	1	24.0	24.0	24.0	29.0%	29.0%	29.6%
2378-TCDD	0.232	0.929	0.544		0.5	0.5		1	0.5	0.5		0.6%	0.6%	
2378-TCDF	0.133	0.534	2.191	U	2.2	2.2	1.1	1	2.2	2.2	1.1	2.7%	2.7%	1.4%
OCDD	0.025	0.101	109.699		109.7	109.7	109.7	0	0	0	0	0%	0%	0%
OCDF	0.134	0.536	31.981		32	32	32	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	2.66	10.64	898		898	898	898	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 114	3.84	15.36	167		167	167	167	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	2.79	11.16	3050		3050	3050	3050	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	3.03	12.12	16.8		16.8	16.8	16.8	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.606	2.426	246.55		246.5	246.5	246.5	0.1	24.7	24.7	24.7	29.7%	29.7%	30.4%
PCB 156	3.06	12.24	970		970	970	970	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 157	2.98	11.92	164		164	164	164	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	3.33	13.32	193		193	193	193	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.262	1.048	87.858		87.9	87.9	87.9	0.001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 189	0.881	3.524	67.2		67.2	67.2	67.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.627	2.508	5.664		5.7	5.7	5.7	0.05	0.3	0.3	0.3	0.3%	0.3%	0.4%
PCB 81	0.638	2.553	1.467		1.5	1.5		0.1	0.2	0.2		0.2%	0.2%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		57.5	57.5	55.9
All PCBs		25.4	25.4	25.3
All PCDDs/PCDFs/PCBs		82.9	82.9	81.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH044
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, South Plants

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.236	0.942	542.59		542.6	542.6	542.6	0.001	0.5	0.5	0.5	0.3%	0.3%	0.3%
1234678-HpCDF	0.615	2.460	266.06		266.1	266.1	266.1	0.01	2.7	2.7	2.7	1.6%	1.6%	1.7%
1234789-HpCDF	1.038	4.152	29.465		29.5	29.5	29.5	0.01	0.3	0.3	0.3	0.2%	0.2%	0.2%
123478-HxCDD	0.010	0.041	38.783		38.8	38.8	38.8	0.05	1.9	1.9	1.9	1.2%	1.2%	1.2%
123478-HxCDF	0.559	2.236	141.99		142	142	142	0.1	14.2	14.2	14.2	8.8%	8.8%	8.8%
123678-HxCDD	0.009	0.035	100.29		100.3	100.3	100.3	0.01	1.0	1.0	1.0	0.6%	0.6%	0.6%
123678-HxCDF	0.494	1.975	66.65		66.7	66.7	66.7	0.1	6.7	6.7	6.7	4.1%	4.1%	4.2%
123789-HxCDD	0.009	0.036	16.223		16.2	16.2	16.2	0.1	1.6	1.6	1.6	1.0%	1.0%	1.0%
123789-HxCDF	0.647	2.588	3.223		3.2	3.2	3.2	0.1	0.3	0.3	0.3	0.2%	0.2%	0.2%
12378-PeCDD	0.096	0.385	14.568		14.6	14.6	14.6	1	14.6	14.6	14.6	9.1%	9.1%	9.1%
12378-PeCDF	0.043	0.171	4.384		4.4	4.4	4.4	0.1	0.4	0.4	0.4	0.3%	0.3%	0.3%
234678-HxCDF	0.540	2.160	30.903		30.9	30.9	30.9	0.1	3.1	3.1	3.1	1.9%	1.9%	1.9%
23478-PeCDF	0.035	0.140	48.814		48.8	48.8	48.8	1	48.8	48.8	48.8	30.3%	30.3%	30.4%
2378-TCDD	0.163	0.653	0.978		1	1	1	1	1.0	1.0	1.0	0.6%	0.6%	0.6%
2378-TCDF	0.039	0.155	1.151	U	1.2	1.2	0.6	1	1.2	1.2	0.6	0.7%	0.7%	0.4%
OCDD	0.044	0.177	489.92		489.9	489.9	489.9	0	0	0	0	0%	0%	0%
OCDF	0.129	0.516	73.137		73.1	73.1	73.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	73.9	295.6	1270		1270	1270	1270	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 114	101	404	155		155	155		0.0001	0.0	0.0		0.0%	0.0%	
PCB 118	67.2	268.8	3700		3700	3700	3700	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	77.4	309.6	LT		38.7			0.00001	0.0			0.0%		
PCB 126	0.366	1.464	618.1		618.1	618.1	618.1	0.1	61.8	61.8	61.8	38.3%	38.3%	38.5%
PCB 156	43.4	173.6	605		605	605	605	0.0001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 157	41.9	167.6	112		112	112		0.0001	0.0	0.0		0.0%	0.0%	
PCB 167	47.4	189.6	171		171	171		0.00001	0.0	0.0		0.0%	0.0%	
PCB 169	0.387	1.546	174.03		174	174	174	0.001	0.2	0.2	0.2	0.1%	0.1%	0.1%
PCB 189	56.9	227.6	36		36	36		0.00001	0.0	0.0		0.0%	0.0%	
PCB 77	0.508	2.032	9.818		9.8	9.8	9.8	0.05	0.5	0.5	0.5	0.3%	0.3%	0.3%
PCB 81	0.506	2.023	2.15		2.2	2.2	2.2	0.1	0.2	0.2	0.2	0.1%	0.1%	0.1%

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		98.4	98.4	97.8
All PCBs		62.9	62.9	62.9
All PCDDs/PCDFs/PCBs		161.3	161.3	160.7

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH144
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: On-post, Section 1 (south of South Plants)

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.566	2.265	11.755		11.8	11.8	11.8	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	21.436	85.744	LT	D	10.7			0.01	0.1			0.0%		
1234789-HpCDF	6.550	26.200	5.246		5.2	5.2		0.01	0.1	0.1		0.0%	0.0%	
123478-HxCDD	1.881	7.525	10.859		10.9	10.9	10.9	0.05	0.5	0.5	0.5	0.2%	0.2%	0.2%
123478-HxCDF	0.309	1.234	142.08		142.1	142.1	142.1	0.1	14.2	14.2	14.2	4.3%	4.3%	4.4%
123678-HxCDD	1.641	6.564	32.253		32.3	32.3	32.3	0.01	0.3	0.3	0.3	0.1%	0.1%	0.1%
123678-HxCDF	0.257	1.028	54.82		54.8	54.8	54.8	0.1	5.5	5.5	5.5	1.7%	1.7%	1.7%
123789-HxCDD	1.572	6.288	LT		0.8			0.1	0.1			0.0%		
123789-HxCDF	0.276	1.105	2.461		2.5	2.5	2.5	0.1	0.3	0.3	0.3	0.1%	0.1%	0.1%
12378-PeCDD	0.242	0.968	15.051		15.1	15.1	15.1	1	15.1	15.1	15.1	4.6%	4.6%	4.6%
12378-PeCDF	0.051	0.204	4.213		4.2	4.2	4.2	0.1	0.4	0.4	0.4	0.1%	0.1%	0.1%
234678-HxCDF	0.261	1.042	11.953		12	12	12	0.1	1.2	1.2	1.2	0.4%	0.4%	0.4%
23478-PeCDF	0.045	0.181	166.43		166.4	166.4	166.4	1	166.4	166.4	166.4	50.5%	50.6%	51.1%
2378-TCDD	0.210	0.841	2.408		2.4	2.4	2.4	1	2.4	2.4	2.4	0.7%	0.7%	0.7%
2378-TCDF	0.378	1.513	2.965	U	3	3	1.5	1	3.0	3.0	1.5	0.9%	0.9%	0.5%
OCDD	0.135	0.541	7.386		7.4	7.4	7.4	0	0	0	0	0%	0%	0%
OCDF	2.926	11.704	LT	EMPC	1.5			0.0001	0.0			0.0%		
PCB 105	62.2	248.8	29300		29300	29300	29300	0.0001	2.9	2.9	2.9	0.9%	0.9%	0.9%
PCB 114	84.9	339.6	6730		6730	6730	6730	0.0001	0.7	0.7	0.7	0.2%	0.2%	0.2%
PCB 118	56.6	226.4	109000	C	109000	109000	109000	0.00001	1.1	1.1	1.1	0.3%	0.3%	0.3%
PCB 123	65.2	260.8	809		809	809	809	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	4.594	18.376	1082.5		1082.5	1082.5	1082.5	0.1	108.3	108.3	108.3	32.9%	32.9%	33.3%
PCB 156	29.3	117.2	32800		32800	32800	32800	0.0001	3.3	3.3	3.3	1.0%	1.0%	1.0%
PCB 157	28.3	113.2	4850		4850	4850	4850	0.0001	0.5	0.5	0.5	0.1%	0.1%	0.1%
PCB 167	32	128	5040		5040	5040	5040	0.00001	0.1	0.1	0.1	0.0%	0.0%	0.0%
PCB 169	4.226	16.904	812.18		812.2	812.2	812.2	0.001	0.8	0.8	0.8	0.2%	0.2%	0.2%
PCB 189	18.4	73.6	2230		2230	2230	2230	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	6.611	26.444	20.62		20.6	20.6		0.05	1.0	1.0		0.3%	0.3%	
PCB 81	6.409	25.636	10.099		10.1	10.1		0.1	1.0	1.0		0.3%	0.3%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		209.6	209.4	207.8
All PCBs		119.6	119.6	117.6
All PCDDs/PCDFs/PCBs		329.2	329.0	325.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH190
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 4 SW

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.010	0.040	6.937		6.9	6.9	6.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	16.602	66.408	LT	D	8.3			0.01	0.1			0.7%		
1234789-HpCDF	5.818	23.271	LT		2.9			0.01	0.0			0.2%		
123478-HxCDD	0.252	1.007	1.868		1.9	1.9	1.9	0.05	0.1	0.1	0.1	0.8%	0.9%	0.9%
123478-HxCDF	0.116	0.464	4.261		4.3	4.3	4.3	0.1	0.4	0.4	0.4	3.6%	4.0%	4.1%
123678-HxCDD	0.225	0.899	6.025		6	6	6	0.01	0.1	0.1	0.1	0.5%	0.6%	0.6%
123678-HxCDF	0.095	0.380	1.885		1.9	1.9	1.9	0.1	0.2	0.2	0.2	1.6%	1.8%	1.8%
123789-HxCDD	0.728	2.912	LT	EMPC	0.4			0.1	0.0			0.3%		
123789-HxCDF	0.113	0.453	0.911		0.9	0.9	0.9	0.1	0.1	0.1	0.1	0.7%	0.8%	0.9%
12378-PeCDD	0.188	0.751	1.636		1.6	1.6	1.6	1	1.6	1.6	1.6	13.2%	15.0%	15.2%
12378-PeCDF	0.37	1.48	LT	EMPC	0.2			0.1	0.0			0.2%		
234678-HxCDF	15.82	63.28	LT	D	7.9			0.1	0.8			6.5%		
23478-PeCDF	0.008	0.030	1.832		1.8	1.8	1.8	1	1.8	1.8	1.8	14.9%	16.8%	17.1%
2378-TCDD	0.525	2.1	LT	EMPC	0.3			1	0.3			2.5%		
2378-TCDF	0.49	1.96	LT	EMPC, U	0.2			1	0.2			1.7%		
OCDD	0.128	0.5117	4.737		4.7	4.7	4.7	0	0	0	0	0%	0%	0%
OCDF	0.223	0.891	0.708		0.7	0.7		0.0001	0.0	0.0		0.0%	0.0%	
PCB 105	1.95	7.8	883		883	883	883	0.0001	0.1	0.1	0.1	0.7%	0.8%	0.8%
PCB 114	2.81	11.24	68.9		68.9	68.9	68.9	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	2.04	8.16	2610		2610	2610	2610	0.00001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 123	2.22	8.88	30.8		30.8	30.8	30.8	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.469	1.874	53.506		53.5	53.5	53.5	0.1	5.4	5.4	5.4	44.2%	50.0%	51.0%
PCB 156	2.51	10.04	816		816	816	816	0.0001	0.1	0.1	0.1	0.7%	0.8%	0.8%
PCB 157	2.44	9.76	152		152	152	152	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 167	2.72	10.88	277		277	277	277	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.423	1.692	46.032		46	46	46	0.001	0.0	0.0	0.0	0.4%	0.4%	0.4%
PCB 189	0.914	3.656	131		131	131	131	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.883	3.531	11.623		11.6	11.6	11.6	0.05	0.6	0.6	0.6	4.8%	5.4%	5.5%
PCB 81	0.916	3.665	1.736		1.7	1.7		0.1	0.2	0.2		1.4%	1.6%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		5.7	4.3	4.3
All PCBs		6.4	6.4	6.2
All PCDDs/PCDFs/PCBs		12.1	10.7	10.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH231
SAMPLE TYPE: Great horned owl liver (unknown)
LOCATION: On-post, Section 23 SW

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.127	0.507	55.102		55.1	55.1	55.1	0.001	0.1	0.1	0.1	0.2%	0.3%	0.3%
1234678-HpCDF	9.312	37.248	22.744		22.7	22.7		0.01	0.2	0.2		1.0%	1.1%	
1234789-HpCDF	12.759	51.035	LT		6.4			0.01	0.1			0.3%		
123478-HxCDD	0.346	1.384	7.179		7.2	7.2	7.2	0.05	0.4	0.4	0.4	1.6%	1.7%	1.8%
123478-HxCDF	0.108	0.433	9.348		9.3	9.3	9.3	0.1	0.9	0.9	0.9	4.2%	4.5%	4.6%
123678-HxCDD	0.325	1.299	19.801		19.8	19.8	19.8	0.01	0.2	0.2	0.2	0.9%	1.0%	1.0%
123678-HxCDF	0.094	0.378	5.694		5.7	5.7	5.7	0.1	0.6	0.6	0.6	2.6%	2.8%	2.8%
123789-HxCDD	0.316	1.266	2.391		2.4	2.4	2.4	0.1	0.2	0.2	0.2	1.1%	1.2%	1.2%
123789-HxCDF	0.110	0.442	0.817		0.8	0.8	0.8	0.1	0.1	0.1	0.1	0.4%	0.4%	0.4%
12378-PeCDD	0.144	0.577	4.002		4	4	4	1	4.0	4.0	4.0	18.1%	19.3%	19.9%
12378-PeCDF	0.063	0.253	LT		0			0.1	0.0			0.0%		
234678-HxCDF	17.156	68.624	LT	D	8.6			0.1	0.9			3.9%		
23478-PeCDF	0.054	0.216	5.611		5.6	5.6	5.6	1	5.6	5.6	5.6	25.3%	27.1%	27.9%
2378-TCDD	0.709	2.836	LT	EMPC	0.4			1	0.4			1.8%		
2378-TCDF	0.105	0.418	0.31	U	0.3	0.3		1	0.3	0.3		1.4%	1.4%	
OCDD	0.084	0.338	48.825		48.8	48.8	48.8	0	0	0	0	0%	0%	0%
OCDF	0.332	1.329	8.99		9	9	9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	21.9	87.6	1510		1510	1510	1510	0.0001	0.2	0.2	0.2	0.7%	0.7%	0.8%
PCB 114	29.9	119.6	413		413	413	413	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 118	19.9	79.6	7440		7440	7440	7440	0.00001	0.1	0.1	0.1	0.3%	0.4%	0.4%
PCB 123	23	92	70.4		70.4	70.4		0.00001	0.0	0.0		0.0%	0.0%	
PCB 126	5.297	21.189	65.937		65.9	65.9	65.9	0.1	6.6	6.6	6.6	29.8%	31.8%	32.8%
PCB 156	11.2	44.8	4990		4990	4990	4990	0.0001	0.5	0.5	0.5	2.3%	2.4%	2.5%
PCB 157	10.8	43.2	738		738	738	738	0.0001	0.1	0.1	0.1	0.3%	0.4%	0.4%
PCB 167	12.3	49.2	1070		1070	1070	1070	0.00001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 169	0.953	3.811	172.31		172.3	172.3	172.3	0.001	0.2	0.2	0.2	0.8%	0.8%	0.9%
PCB 189	9.6	38.4	890		890	890	890	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	1.224	4.894	10.367		10.4	10.4	10.4	0.05	0.5	0.5	0.5	2.4%	2.5%	2.6%
PCB 81	1.158	4.632	LT		0.6			0.1	0.1			0.3%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		13.9	12.6	12.0
All PCBs		8.2	8.1	8.1
All PCDDs/PCDFs/PCBs		22.1	20.7	20.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH232
SAMPLE TYPE: Great horned owl liver (unknown)
LOCATION: On-post, Section 23 SW

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.130	0.519	64.623		64.6	64.6	64.6	0.001	0.1	0.1	0.1	0.2%	0.2%	0.2%
1234678-HpCDF	7.266	29.062	42.422		42.4	42.4	42.4	0.01	0.4	0.4	0.4	1.0%	1.0%	1.0%
1234789-HpCDF	9.944	39.778	LT		5			0.01	0.1			0.1%		
123478-HxCDD	0.145	0.578	12.874		12.9	12.9	12.9	0.05	0.6	0.6	0.6	1.5%	1.6%	1.6%
123478-HxCDF	0.295	1.182	20.473		20.5	20.5	20.5	0.1	2.1	2.1	2.1	4.8%	4.9%	5.0%
123678-HxCDD	0.133	0.532	32.964		33	33	33	0.01	0.3	0.3	0.3	0.8%	0.8%	0.8%
123678-HxCDF	0.248	0.993	12.566		12.6	12.6	12.6	0.1	1.3	1.3	1.3	3.0%	3.0%	3.1%
123789-HxCDD	0.130	0.520	4.574		4.6	4.6	4.6	0.1	0.5	0.5	0.5	1.1%	1.1%	1.1%
123789-HxCDF	0.316	1.263	0.695		0.7	0.7		0.1	0.1	0.1		0.2%	0.2%	
12378-PeCDD	0.152	0.608	15.148		15.1	15.1	15.1	1	15.1	15.1	15.1	35.5%	36.3%	36.7%
12378-PeCDF	0.188	0.752	0.612		0.6	0.6		0.1	0.1	0.1		0.1%	0.1%	
234678-HxCDF	17.091	68.364	LT	D	8.5			0.1	0.9			2.0%		
23478-PeCDF	0.156	0.624	8.195		8.2	8.2	8.2	1	8.2	8.2	8.2	19.3%	19.7%	20.0%
2378-TCDD	0.499	1.998	2.049		2	2	2	1	2.0	2.0	2.0	4.7%	4.8%	4.9%
2378-TCDF	0.243	0.974	0.584	U	0.6	0.6	0.3	1	0.6	0.6	0.3	1.4%	1.4%	0.7%
OCDD	0.234	0.935	92.404		92.4	92.4	92.4	0	0	0	0	0%	0%	0%
OCDF	0.932	3.730	21.409		21.4	21.4	21.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	2.2	8.8	629		629	629	629	0.0001	0.1	0.1	0.1	0.1%	0.2%	0.2%
PCB 114	3.17	12.68	67		67	67	67	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	2.3	9.2	1940		1940	1940	1940	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	2.5	10	17.4		17.4	17.4	17.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.417	1.670	98.142		98.1	98.1	98.1	0.1	9.8	9.8	9.8	23.1%	23.6%	23.9%
PCB 156	1.49	5.96	608		608	608	608	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 157	1.45	5.8	100		100	100	100	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	1.62	6.48	156		156	156	156	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.219	0.878	46.85		46.9	46.9	46.9	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 189	0.739	2.956	68.3		68.3	68.3	68.3	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.582	2.327	5.233		5.2	5.2	5.2	0.05	0.3	0.3	0.3	0.6%	0.6%	0.6%
PCB 81	0.575	2.302	0.593		0.6	0.6		0.1	0.1	0.1		0.1%	0.1%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		32.2	31.3	30.8
All PCBs		10.3	10.3	10.3
All PCDDs/PCDFs/PCBs		42.5	41.6	41.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGH250
SAMPLE TYPE: Great horned owl liver (unknown)
LOCATION: On-post, Section 36

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.084	0.337	56.689		56.7	56.7	56.7	0.001	0.1	0.1	0.1	0.0%	0.0%	0.0%
1234678-HpCDF	0.977	3.909	65.05		65.1	65.1	65.1	0.01	0.7	0.7	0.7	0.5%	0.5%	0.5%
1234789-HpCDF	1.400	5.598	93.353		93.4	93.4	93.4	0.01	0.9	0.9	0.9	0.7%	0.7%	0.7%
123478-HxCDD	0.082	0.327	5.854		5.9	5.9	5.9	0.05	0.3	0.3	0.3	0.2%	0.2%	0.2%
123478-HxCDF	0.201	0.806	275.32		275.3	275.3	275.3	0.1	27.5	27.5	27.5	21.0%	21.0%	21.1%
123678-HxCDD	0.079	0.317	11.148		11.1	11.1	11.1	0.01	0.1	0.1	0.1	0.1%	0.1%	0.1%
123678-HxCDF	0.172	0.687	101.85		101.8	101.8	101.8	0.1	10.2	10.2	10.2	7.8%	7.8%	7.8%
123789-HxCDD	0.076	0.304	1.707		1.7	1.7	1.7	0.1	0.2	0.2	0.2	0.1%	0.1%	0.1%
123789-HxCDF	0.239	0.956	7.104		7.1	7.1	7.1	0.1	0.7	0.7	0.7	0.5%	0.5%	0.5%
12378-PeCDD	0.085	0.342	2.419		2.4	2.4	2.4	1	2.4	2.4	2.4	1.8%	1.8%	1.8%
12378-PeCDF	0.188	0.753	9.647		9.6	9.6	9.6	0.1	1.0	1.0	1.0	0.7%	0.7%	0.7%
234678-HxCDF	0.208	0.831	19.842		19.8	19.8	19.8	0.1	2.0	2.0	2.0	1.5%	1.5%	1.5%
23478-PeCDF	0.152	0.608	48.086		48.1	48.1	48.1	1	48.1	48.1	48.1	36.7%	36.7%	36.9%
2378-TCDD	0.499	1.996	LT	EMPC	0.2			1	0.2			0.2%		
2378-TCDF	0.173	0.690	1.33	U	1.3	1.3	0.7	1	1.3	1.3	0.7	1.0%	1.0%	0.5%
OCDD	0.129	0.515	72.646		72.6	72.6	72.6	0	0	0	0	0%	0%	0%
OCDF	0.583	2.331	33.575		33.6	33.6	33.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	2.69	10.76	917		917	917	917	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 114	3.88	15.52	58.8		58.8	58.8	58.8	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	2.82	11.28	2430		2430	2430	2430	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	3.06	12.24	18		18	18	18	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.637	2.550	343.186		343.2	343.2	343.2	0.1	34.3	34.3	34.3	26.2%	26.2%	26.3%
PCB 156	2.1	8.4	417		417	417	417	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	2.04	8.16	94.2		94.2	94.2	94.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	2.28	9.12	163		163	163	163	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.280	1.121	96.354		96.4	96.4	96.4	0.001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 189	0.786	3.144	49.1		49.1	49.1	49.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.635	2.538	12.668		12.7	12.7	12.7	0.05	0.6	0.6	0.6	0.5%	0.5%	0.5%
PCB 81	0.626	2.502	2.823		2.8	2.8	2.8	0.1	0.3	0.3	0.3	0.2%	0.2%	0.2%

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		95.6	95.4	94.8
All PCBs		35.5	35.5	35.5
All PCDDs/PCDFs/PCBs		131.1	130.9	130.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGHL217
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 31 SW

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.131	0.522	28.373		28.4	28.4	28.4	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	14.912	59.648	LT	D	7.5			0.01	0.1			0.1%		
1234789-HpCDF	1.814	7.255	3.082		3.1	3.1		0.01	0.0	0.0		0.1%	0.1%	
123478-HxCDD	8.826	35.304	LT	EMPC	4.4			0.05	0.2			0.4%		
123478-HxCDF	0.428	1.712	39.186		39.2	39.2	39.2	0.1	3.9	3.9	3.9	7.6%	7.7%	7.7%
123678-HxCDD	0.215	0.861	27.931		27.9	27.9	27.9	0.01	0.3	0.3	0.3	0.5%	0.6%	0.6%
123678-HxCDF	0.375	1.500	15.638		15.6	15.6	15.6	0.1	1.6	1.6	1.6	3.0%	3.1%	3.1%
123789-HxCDD	0.213	0.851	2.746		2.7	2.7	2.7	0.1	0.3	0.3	0.3	0.5%	0.5%	0.5%
123789-HxCDF	0.460	1.839	2.513		2.5	2.5	2.5	0.1	0.3	0.3	0.3	0.5%	0.5%	0.5%
12378-PeCDD	0.284	1.137	9.205		9.2	9.2	9.2	1	9.2	9.2	9.2	17.7%	18.2%	18.2%
12378-PeCDF	0.168	0.670	2.035		2	2	2	0.1	0.2	0.2	0.2	0.4%	0.4%	0.4%
234678-HxCDF	7.969	31.876	LT	D	4			0.1	0.4			0.8%		
23478-PeCDF	0.144	0.575	13.621		13.6	13.6	13.6	1	13.6	13.6	13.6	26.2%	26.9%	26.9%
2378-TCDD	0.215	0.861	1.073		1.1	1.1	1.1	1	1.1	1.1	1.1	2.1%	2.2%	2.2%
2378-TCDF	1.045	4.18	LT	EMPC, U	0.5			1	0.5			1.0%		
OCDD	0.344	1.376	26.502		26.5	26.5	26.5	0	0	0	0	0%	0%	0%
OCDF	0.179	0.718	7.578		7.6	7.6	7.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	3.99	15.96	3060		3060	3060	3060	0.0001	0.3	0.3	0.3	0.6%	0.6%	0.6%
PCB 114	5.76	23.04	259		259	259	259	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 118	4.18	16.72	7530		7530	7530	7530	0.00001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 123	4.55	18.2	61.2		61.2	61.2	61.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	1.940	7.761	186.97		187	187	187	0.1	18.7	18.7	18.7	36.0%	37.0%	37.0%
PCB 156	4.33	17.32	1580		1580	1580	1580	0.0001	0.2	0.2	0.2	0.3%	0.3%	0.3%
PCB 157	4.22	16.88	318		318	318	318	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 167	4.71	18.84	489		489	489	489	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.647	2.586	77.715		77.7	77.7	77.7	0.001	0.1	0.1	0.1	0.1%	0.2%	0.2%
PCB 189	1.06	4.24	124		124	124	124	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	2.180	8.721	16.746		16.7	16.7	16.7	0.05	0.8	0.8	0.8	1.6%	1.7%	1.7%
PCB 81	2.208	8.832	LT		1.1			0.1	0.1			0.2%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		31.6	30.4	30.4
All PCBs		20.3	20.2	20.2
All PCDDs/PCDFs/PCBs		51.9	50.6	50.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96FGHL219
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 34 (Toxic Storage Yard)

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.004	0.015	2.052		2.1	2.1	2.1	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	0.460	1.838	2.97		3	3	3	0.01	0.0	0.0	0.0	0.1%	0.2%	0.2%
1234789-HpCDF	2.111	8.444	LT	EMPC	1.1			0.01	0.0			0.1%		
123478-HxCDD	0.013	0.053	1.115		1.1	1.1	1.1	0.05	0.1	0.1	0.1	0.3%	0.3%	0.3%
123478-HxCDF	0.131	0.523	16.627		16.6	16.6	16.6	0.1	1.7	1.7	1.7	7.8%	8.3%	8.3%
123678-HxCDD	0.013	0.051	2.17		2.2	2.2	2.2	0.01	0.0	0.0	0.0	0.1%	0.1%	0.1%
123678-HxCDF	0.106	0.424	5.816		5.8	5.8	5.8	0.1	0.6	0.6	0.6	2.7%	2.9%	2.9%
123789-HxCDD	0.289	1.156	LT	EMPC	0.1			0.1	0.0			0.0%		
123789-HxCDF	1.011	4.044	LT	EMPC	0.5			0.1	0.1			0.2%		
12378-PeCDD	1.031	4.124	LT	EMPC	0.5			1	0.5			2.3%		
12378-PeCDF	1.303	5.212	LT	EMPC	0.7			0.1	0.1			0.3%		
234678-HxCDF	1.503	6.012	LT	D	0.8			0.1	0.1			0.4%		
23478-PeCDF	0.049	0.196	3.712		3.7	3.7	3.7	1	3.7	3.7	3.7	17.4%	18.5%	18.6%
2378-TCDD	0.25	1	LT	EMPC	0.1			1	0.1			0.5%		
2378-TCDF	0.821	3.284	LT	EMPC, U	0.4			1	0.4			1.9%		
OCDD	2.662	10.648	LT	EMPC	1.3			0	0			0%		
OCDF	0.067	0.266	0.851		0.9	0.9	0.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	257	1028	2270		2270	2270	2270	0.0001	0.2	0.2	0.2	1.1%	1.1%	1.1%
PCB 114	351	1404	125		125	125		0.0001	0.0	0.0		0.1%	0.1%	
PCB 118	234	936	6280		6280	6280	6280	0.00001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 123	269	1076	LT		134.5			0.00001	0.0			0.0%		
PCB 126	0.332	1.328	127.85		127.9	127.9	127.9	0.1	12.8	12.8	12.8	60.0%	64.0%	64.3%
PCB 156	46.8	187.2	531		531	531	531	0.0001	0.1	0.1	0.1	0.2%	0.3%	0.3%
PCB 157	45.2	180.8	133		133	133		0.0001	0.0	0.0		0.1%	0.1%	
PCB 167	51.1	204.4	262		262	262	262	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.236	0.943	33.813		33.8	33.8	33.8	0.001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 189	22.8	91.2	29.4		29.4	29.4		0.00001	0.0	0.0		0.0%	0.0%	
PCB 77	0.252	1.009	9.216		9.2	9.2	9.2	0.05	0.5	0.5	0.5	2.2%	2.3%	2.3%
PCB 81	0.264	1.056	2.956		3	3	3	0.1	0.3	0.3	0.3	1.4%	1.5%	1.5%

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		7.3	6.0	6.0
All PCBs		14.0	14.0	13.9
All PCDDs/PCDFs/PCBs		21.3	20.0	19.9

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: GHL31SE96
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 31 SE

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.006	0.0253	2.637		2.6	2.6	2.6	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	1.632	6.528	LT	D	0.8			0.01	0.0			0.2%		
1234789-HpCDF	0.534	2.136	LT	EMPC	0.3			0.01	0.0			0.1%		
123478-HxCDD	0.005	0.0213	0.907		0.9	0.9	0.9	0.05	0.0	0.0	0.0	1.2%	1.7%	1.8%
123478-HxCDF	0.105	0.4191	3.84		3.8	3.8	3.8	0.1	0.4	0.4	0.4	10.0%	14.6%	15.2%
123678-HxCDD	0.005	0.0195	1.35		1.4	1.4	1.4	0.01	0.0	0.0	0.0	0.4%	0.5%	0.6%
123678-HxCDF	0.086	0.3426	1.879		1.9	1.9	1.9	0.1	0.2	0.2	0.2	5.0%	7.3%	7.6%
123789-HxCDD	0.278	1.112	LT	EMPC	0.1			0.1	0.0			0.3%		
123789-HxCDF	0.109	0.435	0.714		0.7	0.7	0.7	0.1	0.1	0.1	0.1	1.8%	2.7%	2.8%
12378-PeCDD	0.652	2.608	LT	EMPC	0.3			1	0.3			7.9%		
12378-PeCDF	0.32	1.28	LT	EMPC	0.2			0.1	0.0			0.5%		
234678-HxCDF	1.136	4.544	LT	D	0.6			0.1	0.1			1.6%		
23478-PeCDF	1.045	4.18	LT	EMPC	0.5			1	0.5			13.2%		
2378-TCDD	0.163	0.652	LT	EMPC	0.1			1	0.1			2.6%		
2378-TCDF	0.402	1.608	LT	EMPC, U	0.2			1	0.2			5.3%		
OCDD	0.026	0.104	4.027		4	4	4	0	0	0	0	0%	0%	0%
OCDF	0.485	1.94	LT	EMPC	0.2			0.0001	0.0			0.0%		
PCB 105	19.7	78.8	108		108	108	108	0.0001	0.0	0.0	0.0	0.3%	0.4%	0.4%
PCB 114	26.9	107.6	LT		13.5			0.0001	0.0			0.0%		
PCB 118	17.9	71.6	280		280	280	280	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	20.6	82.4	LT		10.3			0.00001	0.0			0.0%		
PCB 126	0.295	1.180	14.081		14.1	14.1	14.1	0.1	1.4	1.4	1.4	37.1%	54.2%	56.4%
PCB 156	6.52	26.08	36.3		36.3	36.3	36.3	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 157	7.39	29.56	LT	EMPC	3.7			0.0001	0.0			0.0%		
PCB 167	7.11	28.44	13.5		13.5	13.5		0.00001	0.0	0.0		0.0%	0.0%	
PCB 169	0.043	0.174	7.441		7.4	7.4	7.4	0.001	0.0	0.0	0.0	0.2%	0.3%	0.3%
PCB 189	7.21	28.84	LT		3.6			0.00001	0.0			0.0%		
PCB 77	0.404	1.616	7.428		7.4	7.4	7.4	0.05	0.4	0.4	0.4	9.7%	14.2%	14.8%
PCB 81	0.402	1.607	0.67		0.7	0.7		0.1	0.1	0.1		1.8%	2.7%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		1.9	0.7	0.7
All PCBs		1.9	1.9	1.8
All PCDDs/PCDFs/PCBs		3.8	2.6	2.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: GHL34SE96
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: On-post, Section 34 SE

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.054	0.216	105.28		105.3	105.3	105.3	0.001	0.1	0.1	0.1	0.5%	0.5%	0.5%
1234678-HpCDF	0.333	1.333	83.316		83.3	83.3	83.3	0.01	0.8	0.8	0.8	3.6%	3.7%	3.8%
1234789-HpCDF	0.522	2.087	8.824		8.8	8.8	8.8	0.01	0.1	0.1	0.1	0.4%	0.4%	0.4%
123478-HxCDD	0.006	0.022	13.757		13.8	13.8	13.8	0.05	0.7	0.7	0.7	3.0%	3.1%	3.1%
123478-HxCDF	0.245	0.979	18.57		18.6	18.6	18.6	0.1	1.9	1.9	1.9	8.1%	8.3%	8.5%
123678-HxCDD	0.005	0.020	25.394		25.4	25.4	25.4	0.01	0.3	0.3	0.3	1.1%	1.1%	1.2%
123678-HxCDF	0.203	0.812	16.925		16.9	16.9	16.9	0.1	1.7	1.7	1.7	7.3%	7.5%	7.7%
123789-HxCDD	0.005	0.020	7.763		7.8	7.8	7.8	0.1	0.8	0.8	0.8	3.4%	3.5%	3.5%
123789-HxCDF	0.252	1.008	0.976		1	1		0.1	0.1	0.1		0.4%	0.4%	
12378-PeCDD	0.006	0.024	5.078		5.1	5.1	5.1	1	5.1	5.1	5.1	22.2%	22.8%	23.2%
12378-PeCDF	0.471	1.884	LT	EMPC	0.2			0.1	0.0			0.1%		
234678-HxCDF	11.934	47.736	LT	D	6			0.1	0.6			2.6%		
23478-PeCDF	0.044	0.175	5.118		5.1	5.1	5.1	1	5.1	5.1	5.1	22.2%	22.8%	23.2%
2378-TCDD	0.076	0.304	0.402		0.4	0.4	0.4	1	0.4	0.4	0.4	1.7%	1.8%	1.8%
2378-TCDF	0.070	0.282	0.483	U	0.5	0.5	0.2	1	0.5	0.5	0.2	2.2%	2.2%	0.9%
OCDD	0.046	0.184	54.379		54.4	54.4	54.4	0	0	0	0	0%	0%	0%
OCDF	0.085	0.340	19.763		19.8	19.8	19.8	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	1.25	5	113		113	113	113	0.0001	0.0	0.0	0.0	0.0%	0.1%	0.1%
PCB 114	1.79	7.16	13.1		13.1	13.1	13.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 118	1.3	5.2	384		384	384	384	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	1.42	5.68	3.85		3.9	3.9		0.00001	0.0	0.0		0.0%	0.0%	
PCB 126	0.254	1.016	44.296		44.3	44.3	44.3	0.1	4.4	4.4	4.4	19.3%	19.8%	20.1%
PCB 156	1.02	4.08	118		118	118	118	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 157	0.997	3.988	22.9		22.9	22.9	22.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 167	29.6	118.4	LT	EMPC	14.8			0.00001	0.0			0.0%		
PCB 169	0.098	0.393	17.395		17.4	17.4	17.4	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 189	0.518	2.072	11.1		11.1	11.1	11.1	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.295	1.178	7.478		7.5	7.5	7.5	0.05	0.4	0.4	0.4	1.6%	1.7%	1.7%
PCB 81	0.305	1.221	0.746		0.7	0.7		0.1	0.1	0.1		0.3%	0.3%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		18.1	17.5	17.1
All PCBs		4.9	4.9	4.9
All PCDDs/PCDFs/PCBs		23.0	22.4	22.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH01
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: Off-post, Colorado Springs

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	6.43	25.72	LT	EMPC	3.2			0.001	0.0			0.0%		
1234678-HpCDF	9.358	37.432	LT	D	4.7			0.01	0.0			0.3%		
1234789-HpCDF	2.339	9.356	LT		1.2			0.01	0.0			0.1%		
123478-HxCDD	1.108	4.433	1.815		1.8	1.8		0.05	0.1	0.1		0.5%	0.7%	
123478-HxCDF	4.853	19.412	LT	EMPC	2.4			0.1	0.2			1.5%		
123678-HxCDD	0.996	3.985	2.915		2.9	2.9		0.01	0.0	0.0		0.2%	0.2%	
123678-HxCDF	2.487	9.948	LT	D	1.2			0.1	0.1			0.7%		
123789-HxCDD	0.678	2.712	LT		0.3			0.1	0.0			0.2%		
123789-HxCDF	0.689	2.758	3.626		3.6	3.6	3.6	0.1	0.4	0.4	0.4	2.2%	3.0%	3.9%
12378-PeCDD	2.95	11.8	LT	EMPC	1.5			1	1.5			9.1%		
12378-PeCDF	0.709	2.837	LT		0.4			0.1	0.0			0.2%		
234678-HxCDF	2.743	10.972	LT	EMPC	1.4			0.1	0.1			0.8%		
23478-PeCDF	3.111	12.444	LT	EMPC	1.6			1	1.6			9.7%		
2378-TCDD	0.942	3.768	LT		0.5			1	0.5			3.0%		
2378-TCDF	1.372	5.488	5.734	U	5.7	5.7	2.9	1	5.7	5.7	2.9	34.5%	46.7%	31.2%
OCDD	1.123	4.493	21.883		21.9	21.9	21.9	0	0	0	0	0%	0%	0%
OCDF	2.773	11.092	LT	EMPC	1.4			0.0001	0.0			0.0%		
PCB 105	184	736	273		273	273		0.0001	0.0	0.0		0.2%	0.2%	
PCB 114	251	1004	LT		125.5			0.0001	0.0			0.1%		
PCB 118	167	668	1090		1090	1090	1090	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	193	772	LT		96.5			0.00001	0.0			0.0%		
PCB 126	4.43	17.72	43.311		43.3	43.3	43.3	0.1	4.3	4.3	4.3	26.2%	35.5%	46.6%
PCB 156	179	716	LT	EMPC	89.5			0.0001	0.0			0.1%		
PCB 157	52.5	210	36		36	36		0.0001	0.0	0.0		0.0%	0.0%	
PCB 167	59.3	237.2	79.8		79.8	79.8		0.00001	0.0	0.0		0.0%	0.0%	
PCB 169	0.905	3.62	61.891		61.9	61.9	61.9	0.001	0.1	0.1	0.1	0.4%	0.5%	0.7%
PCB 189	70.4	281.6	LT		35.2			0.00001	0.0	0.0	0.0	0.0%		
PCB 77	2.499	9.996	LT		1.2			0.05	0.1	0.0	0.0	0.4%		
PCB 81	2.361	9.444	15.914		15.9	15.9	15.9	0.1	1.6	1.6	1.6	9.6%	13.0%	17.1%

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		10.4	6.2	3.3
All PCBs		6.1	6.0	6.0
All PCDDs/PCDFs/PCBs		16.5	12.2	9.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH02
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: Off-post, Boulder

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.564	2.256	6.174		6.2	6.2	6.2	0.001	0.0	0.0	0.0	0.0%	0.1%	1.1%
1234678-HpCDF	4.344	17.376	LT	EMPC	2.2			0.01	0.0			0.1%		
1234789-HpCDF	1.952	7.807	LT		1			0.01	0.0			0.1%		
123478-HxCDD	1.589	6.356	LT	EMPC	0.8			0.05	0.0			0.3%		
123478-HxCDF	1.851	7.404	LT		0.9			0.1	0.1			0.6%		
123678-HxCDD	1.979	7.916	LT	EMPC	1			0.01	0.0			0.1%		
123678-HxCDF	1.799	7.196	LT		0.9			0.1	0.1			0.6%		
123789-HxCDD	0.181	0.723	LT		0.1			0.1	0.0			0.1%		
123789-HxCDF	0.476	1.904	5.401		5.4	5.4	5.4	0.1	0.5	0.5	0.5	3.4%	4.4%	93.3%
12378-PeCDD	3.281	13.124	LT		1.6			1	1.6			10.2%		
12378-PeCDF	0.797	3.189	LT		0.4			0.1	0.0			0.3%		
234678-HxCDF	1.894	7.576	LT		0.9			0.1	0.1			0.6%		
23478-PeCDF	0.713	2.853	2.812		2.8	2.8		1	2.8	2.8		17.8%	23.0%	
2378-TCDD	1.606	6.424	LT		0.8			1	0.8			5.1%		
2378-TCDF	1.745	6.979	6.15	U	6.2	6.2		1	6.2	6.2		39.5%	50.8%	
OCDD	1.181	4.723	22.549		22.5	22.5	22.5	0	0	0	0	0%	0%	0.0%
OCDF	3.931	15.724	LT	EMPC	2			0.0001	0.0			0.0%		
PCB 105	4.53	18.12	121		121	121	121	0.0001	0.0	0.0	0.0	0.1%	0.1%	2.1%
PCB 114	6.53	26.12	LT		3.3			0.0001	0.0			0.0%		
PCB 118	4.74	18.96	355		355	355	355	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.6%
PCB 123	5.15	20.6	LT		2.6			0.00001	0.0			0.0%		
PCB 126	6.71	26.84	26.628		26.6	26.6		0.1	2.7	2.7		16.9%	21.8%	
PCB 156	2.79	11.16	67.7		67.7	67.7	67.7	0.0001	0.0	0.0	0.0	0.0%	0.1%	1.2%
PCB 157	15.4	61.6	LT	EMPC	7.7			0.0001	0.0			0.0%		
PCB 167	3.03	12.12	27.4		27.4	27.4	27.4	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	1.45	5.8	9.646		9.6	9.6	9.6	0.001	0.0	0.0	0.0	0.1%	0.1%	1.7%
PCB 189	1.86	7.44	11.2		11.2	11.2	11.2	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	22.8	91.2	LT	EMPC	11.4			0.05	0.6			3.6%		
PCB 81	2.875	11.5	LT		1.4			0.1	0.1			0.9%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		12.3	9.5	0.5
All PCBs		3.4	2.7	0.0
All PCDDs/PCDFs/PCBs		15.7	12.2	0.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH03
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: Off-post, Boulder

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.667	2.669	417.31		417.3	417.3	417.3	0.001	0.4	0.4	0.4	0.3%	0.3%	0.3%
1234678-HpCDF	105.958	423.832	LT	D	53			0.01	0.5			0.4%		
1234789-HpCDF	7.849	31.397	16.509		16.5	16.5		0.01	0.2	0.2		0.1%	0.1%	
123478-HxCDD	0.768	3.070	38.175		38.2	38.2	38.2	0.05	1.9	1.9	1.9	1.4%	1.5%	1.5%
123478-HxCDF	0.697	2.787	251.52		251.5	251.5	251.5	0.1	25.2	25.2	25.2	18.5%	19.5%	20.2%
123678-HxCDD	0.680	2.718	78.909		78.9	78.9	78.9	0.01	0.8	0.8	0.8	0.6%	0.6%	0.6%
123678-HxCDF	0.626	2.506	73.975		74	74	74	0.1	7.4	7.4	7.4	5.4%	5.7%	5.9%
123789-HxCDD	7.796	31.184	LT	EMPC	3.9			0.1	0.4			0.3%		
123789-HxCDF	3.35	13.4	LT	EMPC	1.7			0.1	0.2			0.1%		
12378-PeCDD	10.485	41.94	LT	EMPC	5.2			1	5.2			3.8%		
12378-PeCDF	3.112	12.448	LT	EMPC	1.6			0.1	0.2			0.1%		
234678-HxCDF	0.631	2.525	22.664		22.7	22.7	22.7	0.1	2.3	2.3	2.3	1.7%	1.8%	1.8%
23478-PeCDF	0.162	0.648	68.087		68.1	68.1	68.1	1	68.1	68.1	68.1	50.0%	52.7%	54.7%
2378-TCDD	0.451	1.804	LT		0.2			1	0.2			0.1%		
2378-TCDF	1.511	6.045	8.719	U	8.7	8.7	4.4	1	8.7	8.7	4.4	6.4%	6.7%	3.5%
OCDD	2.386	9.543	128.31		128.3	128.3	128.3	0	0	0	0	0%	0%	0%
OCDF	1.605	6.421	19.56		19.6	19.6	19.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	288	1152	401		401	401		0.0001	0.0	0.0		0.0%	0.0%	
PCB 114	393	1572	LT		196.5			0.0001	0.0			0.0%		
PCB 118	262	1048	1690		1690	1690	1690	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	302	1208	LT		151			0.00001	0.0			0.0%		
PCB 126	7.547	30.188	128.32		128.3	128.3	128.3	0.1	12.8	12.8	12.8	9.4%	9.9%	10.3%
PCB 156	98.2	392.8	251		251	251		0.0001	0.0	0.0		0.0%	0.0%	
PCB 157	94.7	378.8	LT		47.4			0.0001	0.0			0.0%		
PCB 167	107	428	173		173	173		0.00001	0.0	0.0		0.0%	0.0%	
PCB 169	1.238	4.952	177.55		177.5	177.5	177.5	0.001	0.2	0.2	0.2	0.1%	0.1%	0.1%
PCB 189	152	608	LT		76			0.00001	0.0			0.0%		
PCB 77	4.361	17.444	23.654		23.7	23.7	23.7	0.05	1.2	1.2	1.2	0.9%	0.9%	1.0%
PCB 81	4.307	17.228	LT		2.2			0.1	0.2			0.2%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		121.6	114.9	110.4
All PCBs		14.5	14.3	14.2
All PCDDs/PCDFs/PCBs		136.1	129.2	124.6

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH04
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: Off-post, Sedalia

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.425	1.700	48.474		48.5	48.5	48.5	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	35.430	141.720	LT	D	17.7			0.01	0.2			0.5%		
1234789-HpCDF	3.939	15.757	5.797		5.8	5.8		0.01	0.1	0.1		0.1%	0.2%	
123478-HxCDD	0.233	0.931	8.485		8.5	8.5	8.5	0.05	0.4	0.4	0.4	1.1%	1.1%	1.2%
123478-HxCDF	0.846	3.384	45.513		45.5	45.5	45.5	0.1	4.6	4.6	4.6	11.6%	11.9%	12.9%
123678-HxCDD	0.211	0.844	22.414		22.4	22.4	22.4	0.01	0.2	0.2	0.2	0.6%	0.6%	0.6%
123678-HxCDF	0.719	2.875	18.622		18.6	18.6	18.6	0.1	1.9	1.9	1.9	4.8%	4.9%	5.3%
123789-HxCDD	2.183	8.732	LT	EMPC	1.1			0.1	0.1			0.3%		
123789-HxCDF	0.797	3.188	4.658		4.7	4.7	4.7	0.1	0.5	0.5	0.5	1.2%	1.2%	1.3%
12378-PeCDD	1.032	4.129	5.597		5.6	5.6	5.6	1	5.6	5.6	5.6	14.3%	14.6%	15.9%
12378-PeCDF	2.387	9.548	LT	EMPC	1.2			0.1	0.1			0.3%		
234678-HxCDF	0.706	2.824	5.572		5.6	5.6	5.6	0.1	0.6	0.6	0.6	1.4%	1.5%	1.6%
23478-PeCDF	0.097	0.389	13.813		13.8	13.8	13.8	1	13.8	13.8	13.8	35.3%	36.0%	39.2%
2378-TCDD	0.597	2.388	LT		0.3			1	0.3			0.8%		
2378-TCDF	0.972	3.886	5.685	U	5.7	5.7	2.8	1	5.7	5.7	2.8	14.6%	14.9%	8.0%
OCDD	0.671	2.685	60.404		60.4	60.4	60.4	0	0	0	0	0%	0%	0%
OCDF	0.707	2.827	6.141		6.1	6.1	6.1	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	145	580	229		229	229		0.0001	0.0	0.0		0.1%	0.1%	
PCB 114	198	792	LT		99			0.0001	0.0			0.0%		
PCB 118	132	528	720		720	720	720	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	152	608	LT		76			0.00001	0.0			0.0%		
PCB 126	3.44	13.76	40.438		40.4	40.4	40.4	0.1	4.0	4.0	4.0	10.3%	10.5%	11.5%
PCB 156	50.2	200.8	151		151	151		0.0001	0.0	0.0		0.0%	0.0%	
PCB 157	48.4	193.6	38.6		38.6	38.6		0.0001	0.0	0.0		0.0%	0.0%	
PCB 167	54.7	218.8	77.3		77.3	77.3		0.00001	0.0	0.0		0.0%	0.0%	
PCB 169	0.841	3.365	49.103		49.1	49.1	49.1	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 189	69	276	LT		34.5			0.00001	0.0			0.0%		
PCB 77	1.685	6.742	16.552		16.6	16.6	16.6	0.05	0.8	0.8	0.8	2.1%	2.2%	2.4%
PCB 81	1.670	6.682	LT		0.8			0.1	0.1			0.2%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		34.0	33.3	30.3
All PCBs		5.1	5.0	4.9
All PCDDs/PCDFs/PCBs		39.1	38.3	35.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH05
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: Off-post, Fountain

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.054	0.215	5.886		5.9	5.9	5.9	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	6.992	27.967	LT		3.5			0.01	0.0	0.0	0.0	0.2%		
1234789-HpCDF	10.273	41.093	LT		5.1			0.01	0.1	0.0	0.0	0.2%		
123478-HxCDD	0.338	1.354	3.742		3.7	3.7	3.7	0.05	0.2	0.2	0.2	0.8%	0.8%	0.9%
123478-HxCDF	0.186	0.742	3.095		3.1	3.1	3.1	0.1	0.3	0.3	0.3	1.3%	1.4%	1.5%
123678-HxCDD	0.316	1.265	9.84		9.8	9.8	9.8	0.01	0.1	0.1	0.1	0.4%	0.4%	0.5%
123678-HxCDF	0.162	0.650	1.527		1.5	1.5	1.5	0.1	0.2	0.2	0.2	0.7%	0.7%	0.7%
123789-HxCDD	0.307	1.228	0.648		0.6	0.6		0.1	0.1	0.1		0.3%	0.3%	
123789-HxCDF	0.197	0.788	0.778		0.8	0.8		0.1	0.1	0.1		0.3%	0.4%	
12378-PeCDD	0.152	0.609	5.455		5.5	5.5	5.5	1	5.5	5.5	5.5	23.9%	24.3%	26.2%
12378-PeCDF	0.273	1.092	LT	EMPC	0.1			0.1	0.0			0.0%		
234678-HxCDF	5.425	21.700	LT	D	2.7			0.1	0.3			1.2%		
23478-PeCDF	0.008	0.033	4.173		4.2	4.2	4.2	1	4.2	4.2	4.2	18.3%	18.6%	20.0%
2378-TCDD	0.355	1.419	0.919		0.9	0.9		1	0.9	0.9		3.9%	4.0%	
2378-TCDF	0.140	0.561	0.503	U	0.5	0.5		1	0.5	0.5		2.2%	2.2%	
OCDD	0.135	0.539	7.555		7.6	7.6	7.6	0	0	0	0	0%	0%	0%
OCDF	1.019	4.076	LT	EMPC	0.5			0.0001	0.0			0.0%		
PCB 105	129	516	2380		2380	2380	2380	0.0001	0.2	0.2	0.2	1.0%	1.1%	1.1%
PCB 114	175	700	LT		87.5			0.0001	0.0			0.0%		
PCB 118	117	468	11200		11200	11200	11200	0.00001	0.1	0.1	0.1	0.5%	0.5%	0.5%
PCB 123	135	540	124		124	124		0.00001	0.0	0.0		0.0%	0.0%	
PCB 126	0.878	3.514	92.771		92.8	92.8	92.8	0.1	9.3	9.3	9.3	40.3%	41.1%	44.2%
PCB 156	142	568	3410		3410	3410	3410	0.0001	0.3	0.3	0.3	1.5%	1.5%	1.6%
PCB 157	137	548	602		602	602	602	0.0001	0.1	0.1	0.1	0.3%	0.3%	0.3%
PCB 167	155	620	1680		1680	1680	1680	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 169	1.968	7.873	238.15		238.2	238.2	238.2	0.001	0.2	0.2	0.2	1.0%	1.1%	1.1%
PCB 189	103	412	524		524	524	524	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.600	2.399	5.647		5.6	5.6	5.6	0.05	0.3	0.3	0.3	1.2%	1.2%	1.3%
PCB 81	0.609	2.435	LT		0.3			0.1	0.0			0.1%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		12.4	12.0	10.4
All PCBs		10.6	10.6	10.6
All PCDDs/PCDFs/PCBs		23.0	22.6	21.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH07
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: Off-post, Tower Rd. at 104th Street

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.078	0.312	25.997		26	26	26	0.001	0.0	0.0	0.0	0.2%	0.2%	0.2%
1234678-HpCDF	1.976	7.906	11.432		11.4	11.4	11.4	0.01	0.1	0.1	0.1	0.8%	0.8%	0.8%
1234789-HpCDF	2.838	11.351	LT		1.4			0.01	0.0			0.1%		
123478-HxCDD	0.169	0.677	5.974		6	6	6	0.05	0.3	0.3	0.3	2.0%	2.1%	2.1%
123478-HxCDF	0.091	0.365	9.201		9.2	9.2	9.2	0.1	0.9	0.9	0.9	6.1%	6.4%	6.5%
123678-HxCDD	0.150	0.600	13.411		13.4	13.4	13.4	0.01	0.1	0.1	0.1	0.9%	0.9%	0.9%
123678-HxCDF	0.080	0.319	4.693		4.7	4.7	4.7	0.1	0.5	0.5	0.5	3.1%	3.3%	3.3%
123789-HxCDD	1.304	5.216	LT	EMPC	0.7			0.1	0.1			0.5%		
123789-HxCDF	0.567	2.268	LT	EMPC	0.3			0.1	0.0			0.2%		
12378-PeCDD	0.081	0.323	3.15		3.2	3.2	3.2	1	3.2	3.2	3.2	21.3%	22.2%	22.5%
12378-PeCDF	0.039	0.157	0.176		0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.1%	0.1%	0.1%
234678-HxCDF	5.41	21.64	LT	D	2.7			0.1	0.3			1.8%		
23478-PeCDF	0.030	0.121	5.664		5.7	5.7	5.7	1	5.7	5.7	5.7	38.0%	39.6%	40.1%
2378-TCDD	0.426	1.704	LT	EMPC	0.2			1	0.2			1.3%		
2378-TCDF	0.084	0.335	0.379	U	0.4	0.4	0.2	1	0.4	0.4	0.2	2.7%	2.8%	1.4%
OCDD	0.110	0.439	21.001		21	21	21	0	0	0	0	0%	0%	0%
OCDF	0.181	0.724	4.634		4.6	4.6	4.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	43.1	172.4	255		255	255	255	0.0001	0.0	0.0	0.0	0.2%	0.2%	0.2%
PCB 114	58.8	235.2	LT		29.4			0.0001	0.0			0.0%		
PCB 118	39.2	156.8	1020		1020	1020	1020	0.00001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 123	45.2	180.8	LT		22.6			0.00001	0.0			0.0%		
PCB 126	0.309	1.236	28.528		28.5	28.5	28.5	0.1	2.9	2.9	2.9	19.0%	19.8%	20.1%
PCB 156	27.9	111.6	200		200	200	200	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 157	26.9	107.6	41.3		41.3	41.3		0.0001	0.0	0.0		0.0%	0.0%	
PCB 167	30.5	122	LT		15.3			0.00001	0.0			0.0%		
PCB 169	0.198	0.791	60.004		60	60	60	0.001	0.1	0.1	0.1	0.4%	0.4%	0.4%
PCB 189	25.2	100.8	28.8		28.8	28.8		0.00001	0.0	0.0		0.0%	0.0%	
PCB 77	0.137	0.547	2.54		2.5	2.5	2.5	0.05	0.1	0.1	0.1	0.8%	0.9%	0.9%
PCB 81	0.140	0.559	0.421		0.4	0.4		0.1	0.0	0.0		0.3%	0.3%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		11.9	11.3	11.1
All PCBs		3.1	3.1	3.1
All PCDDs/PCDFs/PCBs		15.0	14.4	14.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH09
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: Off-post, Fort Morgan

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	2.140	8.561	28.905		28.9	28.9	28.9	0.001	0.0	0.0	0.0	0.0%	0.1%	0.1%
1234678-HpCDF	35.166	140.66	LT	D	17.6			0.01	0.2			0.3%		
1234789-HpCDF	0.75	3	LT		0.4			0.01	0.0			0.0%		
123478-HxCDD	11.317	45.268	LT	EMPC	5.7			0.05	0.3			0.4%		
123478-HxCDF	23.305	93.22	LT	D	11.7			0.1	1.2			1.7%		
123678-HxCDD	0.857	3.429	36.233		36.2	36.2	36.2	0.01	0.4	0.4	0.4	0.5%	0.6%	0.8%
123678-HxCDF	10.335	41.34	LT	D	5.2			0.1	0.5			0.8%		
123789-HxCDD	3.619	14.476	LT	EMPC	1.8			0.1	0.2			0.3%		
123789-HxCDF	1.950	7.799	5.126		5.1	5.1		0.1	0.5	0.5		0.8%	0.9%	
12378-PeCDD	15.287	61.148	LT	EMPC	7.6			1	7.6			11.3%		
12378-PeCDF	0.743	2.973	4.204		4.2	4.2	4.2	0.1	0.4	0.4	0.4	0.6%	0.7%	0.9%
234678-HxCDF	3.098	12.392	LT	D	1.5			0.1	0.2			0.2%		
23478-PeCDF	0.658	2.631	11.482		11.5	11.5	11.5	1	11.5	11.5	11.5	17.2%	20.3%	25.3%
2378-TCDD	2.546	10.184	2.640		2.6	2.6		1	2.6	2.6		3.9%	4.6%	
2378-TCDF	2.529	10.115	6.611	U	6.6	6.6		1	6.6	6.6		9.9%	11.7%	
OCDD	0.142	0.567	46.733		46.7	46.7	46.7	0	0	0	0	0%	0%	0%
OCDF	0.331	1.323	5.740		5.7	5.7	5.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	14.4	57.6	3080		3080	3080	3080	0.0001	0.3	0.3	0.3	0.5%	0.5%	0.7%
PCB 114	20.8	83.2	342		342	342	342	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	15.1	60.4	9700		9700	9700	9700	0.00001	0.1	0.1	0.1	0.1%	0.2%	0.2%
PCB 123	16.4	65.6	213		213	213	213	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	18.72	74.88	320.98		321	321	321	0.1	32.1	32.1	32.1	47.9%	56.7%	70.7%
PCB 156	15.5	62	3000		3000	3000	3000	0.0001	0.3	0.3	0.3	0.4%	0.5%	0.7%
PCB 157	15.1	60.4	653		653	653	653	0.0001	0.1	0.1	0.1	0.1%	0.1%	0.1%
PCB 167	16.9	67.6	1930		1930	1930	1930	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	5.393	21.572	167.74		167.7	167.7	167.7	0.001	0.2	0.2	0.2	0.3%	0.3%	0.4%
PCB 189	7.24	28.96	573		573	573	573	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	24.007	96.028	30.734		30.7	30.7		0.05	1.5	1.5		2.3%	2.7%	
PCB 81	5.964	23.856	LT		3			0.1	0.3			0.4%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		32.1	22.0	12.3
All PCBs		34.9	34.6	33.1
All PCDDs/PCDFs/PCBs		67.0	56.6	45.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH10
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: Off-post, Littleton

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.109	0.438	14.163		14.2	14.2	14.2	0.001	0.0	0.0	0.0	0.0%	0.0%	0.0%
1234678-HpCDF	33.258	133.03	LT	D	16.6			0.01	0.2			0.4%		
1234789-HpCDF	3.794	15.176	LT		1.9			0.01	0.0			0.0%		
123478-HxCDD	1.927	7.709	8.455		8.5	8.5	8.5	0.05	0.4	0.4	0.4	1.1%	1.3%	1.3%
123478-HxCDF	12.105	48.42	LT	D	6.1			0.1	0.6			1.6%		
123678-HxCDD	1.868	7.474	20.736		20.7	20.7	20.7	0.01	0.2	0.2	0.2	0.5%	0.6%	0.6%
123678-HxCDF	3.797	15.188	LT	D	1.9			0.1	0.2			0.5%		
123789-HxCDD	1.787	7.150	3.36		3.4	3.4		0.1	0.3	0.3		0.9%	1.0%	
123789-HxCDF	3.096	12.384	LT	EMPC	1.5			0.1	0.2			0.4%		
12378-PeCDD	0.867	3.469	10.329		10.3	10.3	10.3	1	10.3	10.3	10.3	27.0%	30.8%	31.2%
12378-PeCDF	2.892	11.568	LT	EMPC	1.4			0.1	0.1			0.4%		
234678-HxCDF	3.369	13.476	LT	D	1.7			0.1	0.2			0.4%		
23478-PeCDF	0.095	0.378	7.922		7.9	7.9	7.9	1	7.9	7.9	7.9	20.7%	23.7%	23.9%
2378-TCDD	1.617	6.468	LT		0.8			1	0.8			2.1%		
2378-TCDF	4.861	19.444	LT	EMPC, U	2.4			1	2.4			6.3%		
OCDD	27.029	108.12	LT	EMPC	13.5			0	0			0%		
OCDF	2.496	9.983	3.905		3.9	3.9		0.0001	0.0	0.0		0.0%	0.0%	
PCB 105	9.63	38.52	2270		2270	2270	2270	0.0001	0.2	0.2	0.2	0.6%	0.7%	0.7%
PCB 114	13.9	55.6	343		343	343	343	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 118	10.1	40.4	9430		9430	9430	9430	0.00001	0.1	0.1	0.1	0.2%	0.3%	0.3%
PCB 123	11	44	142		142	142	142	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	10.517	42.068	122.44		122.4	122.4	122.4	0.1	12.2	12.2	12.2	32.0%	36.6%	37.1%
PCB 156	5.93	23.72	2490		2490	2490	2490	0.0001	0.2	0.2	0.2	0.7%	0.7%	0.8%
PCB 157	5.77	23.08	462		462	462	462	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 167	6.44	25.76	996		996	996	996	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	4.13	16.52	72.56		72.6	72.6	72.6	0.001	0.1	0.1	0.1	0.2%	0.2%	0.2%
PCB 189	3.98	15.92	259		259	259	259	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	2.999	11.996	23.872		23.9	23.9	23.9	0.05	1.2	1.2	1.2	3.1%	3.6%	3.6%
PCB 81	3.752	15.008	LT	EMPC	1.9			0.1	0.2			0.5%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		23.8	19.2	18.8
All PCBs		14.4	14.2	14.2
All PCDDs/PCDFs/PCBs		38.2	33.4	33.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH11
SAMPLE TYPE: Great horned owl liver (juvenile)
LOCATION: Off-post, Byers

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.792	3.169	4.398		4.4	4.4	4.4	0.001	0.0	0.0	0.0	0.0%	0.1%	0.1%
1234678-HpCDF	1.241	4.964	LT		0.6			0.01	0.0			0.1%		
1234789-HpCDF	0.756	3.022	LT		0.4			0.01	0.0			0.0%		
123478-HxCDD	1.287	5.148	LT		0.6			0.05	0.0			0.3%		
123478-HxCDF	1.197	4.788	LT	EMPC	0.6			0.1	0.1			0.6%		
123678-HxCDD	0.697	2.790	LT		0.3			0.01	0.0			0.0%		
123678-HxCDF	1.512	6.048	LT	EMPC	0.8			0.1	0.1			0.9%		
123789-HxCDD	0.691	2.763	LT		0.3			0.1	0.0			0.3%		
123789-HxCDF	0.286	1.143	3.364		3.4	3.4	3.4	0.1	0.3	0.3	0.3	3.6%	4.9%	8.5%
12378-PeCDD	1.959	7.836	LT		1			1	1.0			10.6%		
12378-PeCDF	0.857	3.428	LT		0.4			0.1	0.0			0.4%		
234678-HxCDF	1.21	4.84	LT	EMPC	0.6			0.1	0.1			0.6%		
23478-PeCDF	1.174	4.696	LT		0.6			1	0.6			6.4%		
2378-TCDD	0.814	3.256	LT		0.4			1	0.4			4.3%		
2378-TCDF	1.384	5.534	5.548	U	5.5	5.5	2.8	1	5.5	5.5	2.8	58.5%	79.7%	70.0%
OCDD	1.593	6.373	12.923		12.9	12.9	12.9	0	0	0	0	0%	0%	0%
OCDF	2.509	10.036	LT	EMPC	1.3			0.0001	0.0			0.0%		
PCB 105	0.575	2.3	16.9		16.9	16.9	16.9	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 114	0.828	3.312	LT		0.4			0.0001	0.0			0.0%		
PCB 118	0.601	2.404	49		49	49	49	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	0.654	2.616	LT		0.3			0.00001	0.0			0.0%		
PCB 126	5.828	23.312	2.349		2.3	2.3		0.1	0.2	0.2		2.4%	3.3%	
PCB 156	0.581	2.324	7.65		7.7	7.7	7.7	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 157	1.66	6.64	LT	EMPC	0.8			0.0001	0.0			0.0%		
PCB 167	0.631	2.524	3.58		3.6	3.6	3.6	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 169	0.951	3.804	1.139		1.1	1.1		0.001	0.0	0.0		0.0%	0.0%	
PCB 189	0.193	0.772	LT		0.1			0.00001	0.0			0.0%		
PCB 77	2.08	8.32	17.18		17.2	17.2	17.2	0.05	0.9	0.9	0.9	9.1%	12.5%	21.5%
PCB 81	2.09	8.36	LT		1			0.1	0.1			1.1%		

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		8.2	5.8	3.1
All PCBs		1.2	1.1	0.9
All PCDDs/PCDFs/PCBs		9.4	6.9	4.0

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

GREAT HORNED OWL LIVERS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: 96RFGH12
SAMPLE TYPE: Great horned owl liver (adult)
LOCATION: Off-post, Fleming

Analyte	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Bird	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.701	2.802	25.128		25.1	25.1	25.1	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.986	3.946	10.449		10.4	10.4	10.4	0.01	0.1	0.1	0.1	0.4%	0.4%	0.4%
1234789-HpCDF	1.529	6.116	LT	EMPC	0.8			0.01	0.0			0.0%		
123478-HxCDD	2.145	8.578	7.969		8	8		0.05	0.4	0.4		1.5%	1.5%	
123478-HxCDF	0.224	0.895	16.278		16.3	16.3	16.3	0.1	1.6	1.6	1.6	5.9%	6.1%	6.4%
123678-HxCDD	2.040	8.161	22.39		22.4	22.4	22.4	0.01	0.2	0.2	0.2	0.8%	0.8%	0.9%
123678-HxCDF	0.195	0.781	7.157		7.2	7.2	7.2	0.1	0.7	0.7	0.7	2.6%	2.7%	2.8%
123789-HxCDD	1.968	7.874	LT		1			0.1	0.1			0.4%		
123789-HxCDF	0.243	0.971	1.363		1.4	1.4	1.4	0.1	0.1	0.1	0.1	0.5%	0.5%	0.6%
12378-PeCDD	0.258	1.032	4.723		4.7	4.7	4.7	1	4.7	4.7	4.7	17.1%	17.7%	18.5%
12378-PeCDF	0.776	3.104	LT	EMPC	0.4			0.1	0.0			0.1%		
234678-HxCDF	8.881	35.524	LT	D	4.4			0.1	0.4			1.6%		
23478-PeCDF	0.052	0.207	14.17		14.2	14.2	14.2	1	14.2	14.2	14.2	51.6%	53.4%	55.9%
2378-TCDD	0.350	1.399	0.675		0.7	0.7		1	0.7	0.7		2.5%	2.6%	
2378-TCDF	0.678	2.712	LT	EMPC,U	0.3			1	0.3			1.1%		
OCDD	0.324	1.295	16.378		16.4	16.4	16.4	0	0	0	0	0%	0%	0%
OCDF	0.499	1.994	5.244		5.2	5.2	5.2	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 105	76.6	306.4	313		313	313	313	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 114	105	420	LT		52.5			0.0001	0.0			0.0%		
PCB 118	69.7	278.8	830		830	830	830	0.00001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 123	80.3	321.2	LT		40.2			0.00001	0.0			0.0%		
PCB 126	0.737	2.947	30.215		30.2	30.2	30.2	0.1	3.0	3.0	3.0	11.0%	11.4%	11.9%
PCB 156	29.1	116.4	326		326	326	326	0.0001	0.0	0.0	0.0	0.1%	0.1%	0.1%
PCB 157	28.1	112.4	60.4		60.4	60.4		0.0001	0.0	0.0		0.0%	0.0%	
PCB 167	31.8	127.2	72		72	72		0.00001	0.0	0.0		0.0%	0.0%	
PCB 169	0.509	2.034	244.96		245	245	245	0.001	0.2	0.2	0.2	0.9%	0.9%	1.0%
PCB 189	17.6	70.4	27.6		27.6	27.6		0.00001	0.0	0.0		0.0%	0.0%	
PCB 77	0.613	2.452	6.87		6.9	6.9	6.9	0.05	0.3	0.3	0.3	1.3%	1.3%	1.4%
PCB 81	0.615	2.461	0.955		1	1		0.1	0.1	0.1		0.4%	0.4%	

Total		TEQs		
		Full	Partial	Quant
All PCDD/PCDF		23.7	22.8	21.7
All PCBs		3.8	3.8	3.7
All PCDDs/PCDFs/PCBs		27.5	26.6	25.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

Appendix C4

CARP Eggs - Raw Data and Calculation Of TEQ Values

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP01E
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	**MDL**	**MQL**	**Conc[c]**	**Flag/Qual[d]**	**Full**	**Partial**	**Quant**	**Fish**	**Full**	**Partial**	**Quant**	**Full**	**Partial**	**Quant**
1234678-HpCDD	0.041	0.163	0.747		0.7	0.7	0.7	0.001	0.0	0.0	0.0	0.1%	0.1%	0.8%
1234678-HpCDF	2.928	11.712	LT	D	1.5			0.01	0.0			1.3%		
1234789-HpCDF	0.150	0.600	LT		0.1			0.01	0.0			0.1%		
123478-HxCDD	0.297	1.188	LT	EMPC	0.1			0.5	0.1			4.3%		
123478-HxCDF	0.216	0.864	LT	EMPC	0.1			0.1	0.0			0.9%		
123678-HxCDD	0.008	0.032	0.178		0.2	0.2	0.2	0.01	0.0	0.0	0.0	0.2%	0.4%	2.4%
123678-HxCDF	0.344	1.376	LT	EMPC	0.2			0.1	0.0			1.7%		
123789-HxCDD	0.145	0.580	LT		0.1			0.01	0.0			0.1%		
123789-HxCDF	0.581	2.324	LT	EMPC	0.3			0.1	0.0			2.6%		
12378-PeCDD	0.144	0.577	0.442		0.4	0.4		1	0.4	0.4		34.1%	76.1%	
12378-PeCDF	0.007	0.029	0.464		0.5	0.5	0.5	0.05	0.0	0.0	0.0	2.1%	4.8%	29.7%
234678-HxCDF	5.364	21.456	LT	D	2.7			0.1	0.3			23.0%		
23478-PeCDF	0.227	0.908	LT	EMPC	0.1			0.5	0.1			4.3%		
2378-TCDD	0.392	1.570	LT		0.2			1	0.2			17.1%		
2378-TCDF	0.192	0.770	0.762	U	0.8	0.8		0.05	0.0	0.0		3.4%	7.6%	
OCDD	0.056	0.225	4.031		4	4	4	0	0	0	0	0%	0%	0%
OCDF	0.108	0.434	0.564		0.6	0.6	0.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 126	0.335	1.341	10.299		10.3	10.3	10.3	0.005	0.1	0.1	0.1	4.4%	9.8%	61.2%
PCB 169	0.185	0.741	0.795		0.8	0.8	0.8	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	1.220	4.881	48.907		48.9	48.9	48.9	0.0001	0.0	0.0	0.0	0.4%	0.9%	5.8%
PCB 81	1.235	4.940	2.682		2.7	2.7		0.0005	0.0	0.0		0.1%	0.3%	

	TEQs		
Total	**Full**	**Partial**	**Quant**
All PCDDs/PCDFs	1.1	0.5	0
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1.2	0.6	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP02E
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.005	0.019	0.798		0.8	0.8	0.8	0.001	0.0	0.0	0.0	0.1%	0.2%	0.5%
1234678-HpCDF	1.603	6.412	LT	D	0.8			0.01	0.0			0.9%		
1234789-HpCDF	0.068	0.272	LT		0			0.01	0			0%		
123478-HxCDD	0.142	0.567	0.304		0.3	0.3		0.5	0.2	0.2		16.6%	39.4%	
123478-HxCDF	0.157	0.628	LT		0.1			0.1	0.0			1.1%		
123678-HxCDD	0.131	0.524	LT		0.1			0.01	0.0			0.1%		
123678-HxCDF	0.264	1.056	LT	EMPC	0.1			0.1	0.0			1.1%		
123789-HxCDD	0.128	0.513	LT		0.1			0.01	0.0			0.1%		
123789-HxCDF	0.174	0.694	0.636		0.6	0.6		0.1	0.1	0.1		6.6%	15.8%	
12378-PeCDD	0.159	0.637	LT		0.1			1	0.1			11.0%		
12378-PeCDF	0.255	1.020	LT	EMPC	0.1			0.05	0.0			0.6%		
234678-HxCDF	3.755	15.020	LT	D	1.9			0.1	0.2			21.0%		
23478-PeCDF	0.325	1.300	LT	EMPC	0.2			0.5	0.1			11.0%		
2378-TCDD	0.292	1.166	LT		0.1			1	0.1			11.0%		
2378-TCDF	0.139	0.557	0.827	U	0.8	0.8	0.4	0.05	0.0	0.0	0.0	4.4%	10.5%	13.3%
OCDD	0.010	0.041	4.058		4.1	4.1	4.1	0	0	0	0	0%	0%	0%
OCDF	0.527	2.108	LT	EMPC	0.3			0.0001	0.0			0.0%		
PCB 126	0.869	3.476	23.509		23.5	23.5	23.5	0.005	0.1	0.1	0.1	13.0%	30.9%	78.2%
PCB 169	0.083	0.332	1.118		1.1	1.1	1.1	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	1.044	4.175	89.491		89.5	89.5	89.5	0.0001	0.0	0.0	0.0	1.0%	2.4%	6.0%
PCB 81	1.050	4.199	5.969		6	6	6	0.0005	0.0	0.0	0.0	0.3%	0.8%	2.0%

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.8	0.3	0
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	0.9	0.4	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP06E
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.649	2.596	LT	EMPC	0.3			0.001	0.0			0.0%		
1234678-HpCDF	1.729	6.916	LT	D	0.9			0.01	0.0			1.0%		
1234789-HpCDF	0.048	0.190	LT		0			0.01	0			0%		
123478-HxCDD	0.019	0.074	0.260		0.3	0.3	0.3	0.5	0.2	0.2	0.2	17.3%	52.7%	71.5%
123478-HxCDF	0.238	0.952	LT	EMPC	0.1			0.1	0.0			1.2%		
123678-HxCDD	0.016	0.064	0.106		0.1	0.1	0.1	0.01	0.0	0.0	0.0	0.1%	0.4%	0.5%
123678-HxCDF	0.286	1.144	LT	EMPC	0.1			0.1	0.0			1.2%		
123789-HxCDD	0.061	0.244	LT		0			0.01	0			0%		
123789-HxCDF	0.216	0.866	0.564		0.6	0.6		0.1	0.1	0.1		6.9%	21.1%	
12378-PeCDD	0.364	1.456	LT		0.2			1	0.2			23.0%		
12378-PeCDF	0.190	0.760	LT		0.1			0.05	0.0			0.6%		
234678-HxCDF	3.914	15.654	LT	D	2			0.1	0.2			23.0%		
23478-PeCDF	0.134	0.536	LT		0.1			0.5	0.1			5.8%		
2378-TCDD	0.215	0.858	LT		0.1			1	0.1			11.5%		
2378-TCDF	0.114	0.456	0.566	U	0.6	0.6	0.3	0.05	0.0	0.0	0.0	3.5%	10.5%	7.1%
OCDD	0.042	0.167	2.654		2.7	2.7	2.7	0	0	0	0	0%	0%	0%
OCDF	0.060	0.239	0.299		0.3	0.3	0.3	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.395	1.578	7.662		7.7	7.7	7.7	0.005	0.0	0.0	0.0	4.4%	13.5%	18.3%
PCB 169	0.050	0.199	0.457		0.5	0.5	0.5	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.382	1.530	40.833		40.8	40.8	40.8	0.0001	0.0	0.0	0.0	0.5%	1.4%	1.9%
PCB 81	0.368	1.472	2.442		2.4	2.4	2.4	0.0005	0.0	0.0	0.0	0.1%	0.4%	0.6%

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.8	0.2	0.2
All PCBs	0	0	0
All PCDDs/PCDFs/PCBs	0.8	0.2	0.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP07E
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.921	3.684	LT	EMPC	0.5			0.001	0.0			0.0%		
1234678-HpCDF	1.498	5.992	LT	D	0.7			0.01	0.0			0.6%		
1234789-HpCDF	0.083	0.334	LT		0			0.01	0			0%		
123478-HxCDD	0.297	1.188	LT	EMPC	0.1			0.5	0.1			4.5%		
123478-HxCDF	0.326	1.303	LT		0.2			0.1	0.0			1.8%		
123678-HxCDD	0.018	0.072	0.240		0.2	0.2	0.2	0.01	0.0	0.0	0.0	0.2%	1.0%	1.3%
123678-HxCDF	0.259	1.036	LT		0.1			0.1	0.0			0.9%		
123789-HxCDD	0.067	0.268	LT		0			0.01	0.0			0.0%		
123789-HxCDF	0.568	2.272	LT	EMPC	0.3			0.1	0.0			2.7%		
12378-PeCDD	0.331	1.324	LT	EMPC	0.2			1	0.2			18.1%		
12378-PeCDF	0.462	1.848	LT	EMPC	0.2			0.05	0.0			0.9%		
234678-HxCDF	3.544	14.176	LT	D	1.8			0.1	0.2			16.3%		
23478-PeCDF	0.347	1.388	LT	EMPC	0.2			0.5	0.1			9.0%		
2378-TCDD	0.622	2.488	LT		0.3			1	0.3			27.1%		
2378-TCDF	0.228	0.912	1.763	U	1.8	1.8	0.9	0.05	0.1	0.1	0.0	8.1%	45.4%	29.9%
OCDD	3.011	12.044	LT	EMPC, J	1.5			0	0			0%		
OCDF	0.393	1.572	LT	J	0.2			0.0001	0.0			0.0%		
PCB 126	0.513	2.052	19.059		19.1	19.1	19.1	0.005	0.1	0.1	0.1	8.6%	48.2%	63.4%
PCB 169	0.152	0.606	1.111		1.1	1.1	1.1	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	1.774	7.095	79.581		79.6	79.6	79.6	0.0001	0.0	0.0	0.0	0.7%	4.0%	5.3%
PCB 81	1.714	6.856	5.499		5.5	5.5		0.0005	0.0	0.0		0.2%	1.4%	

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	1	0.1	0
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1.1	0.2	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP08E
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.018	0.070	0.916		0.9	0.9	0.9	0.001	0.0	0.0	0.0	0.1%	0.2%	0.4%
1234678-HpCDF	2.682	10.728	LT	D	1.3			0.01	0.0			1.2%		
1234789-HpCDF	0.030	0.122	LT		0			0.01	0.0			0.0%		
123478-HxCDD	0.059	0.236	0.226		0.2	0.2		0.5	0.1	0.1		9.4%	24.6%	
123478-HxCDF	0.173	0.694	LT		0.1			0.1	0.0			0.9%		
123678-HxCDD	0.054	0.216	LT		0			0.01	0.0			0.0%		
123678-HxCDF	0.205	0.820	LT	EMPC	0.1			0.1	0.0			0.9%		
123789-HxCDD	0.053	0.213	LT		0			0.01	0.0			0.0%		
123789-HxCDF	0.176	0.704	0.605		0.6	0.6		0.1	0.1	0.1		5.6%	14.8%	
12378-PeCDD	0.429	1.716	LT	EMPC	0.2			1	0.2			18.7%		
12378-PeCDF	0.052	0.207	0.274		0.3	0.3	0.3	0.05	0.0	0.0	0.0	1.4%	3.7%	6.5%
234678-HxCDF	6.647	26.588	LT	D	3.3			0.1	0.3			30.9%		
23478-PeCDF	0.045	0.178	0.226		0.2	0.2	0.2	0.5	0.1	0.1	0.1	9.4%	24.6%	43.3%
2378-TCDD	0.163	0.654	LT		0.1			1	0.1			9.4%		
2378-TCDF	0.108	0.434	0.555	U	0.6	0.6	0.3	0.05	0.0	0.0	0.0	2.8%	7.4%	6.5%
OCDD	0.024	0.097	6.106		6.1	6.1	6.1	0	0	0	0	0%	0%	0%
OCDF	0.028	0.111	0.548		0.5	0.5	0.5	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.197	0.789	18.545		18.5	18.5	18.5	0.005	0.1	0.1	0.1	8.7%	22.8%	40.0%
PCB 169	0.167	0.666	0.957		1	1	1	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.846	3.382	56.645		56.6	56.6	56.6	0.0001	0.0	0.0	0.0	0.5%	1.4%	2.4%
PCB 81	0.805	3.218	4.096		4.1	4.1	4.1	0.0005	0.0	0.0	0.0	0.2%	0.5%	0.9%

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	1	0.3	0.1
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1.1	0.4	0.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP10
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	**MDL**	**MQL**	**Conc[c]**	**Flag/Qual[d]**	**Full**	**Partial**	**Quant**	**Fish**	**Full**	**Partial**	**Quant**	**Full**	**Partial**	**Quant**
1234678-HpCDD	0.980	3.920	LT	EMPC	0.5			0.001	0.0			0.1%		
1234678-HpCDF	2.277	9.108	LT	D	1.1			0.01	0.0			1.2%		
1234789-HpCDF	0.041	0.165	LT		0			0.01	0.0			0.0%		
123478-HxCDD	0.332	1.328	LT	EMPC	0.2			0.5	0.1			10.7%		
123478-HxCDF	0.231	0.924	LT	EMPC	0.1			0.1	0.0			1.1%		
123678-HxCDD	0.144	0.576	LT	EMPC	0.1			0.01	0.0			0.1%		
123678-HxCDF	0.319	1.276	LT	EMPC	0.2			0.1	0.0			2.1%		
123789-HxCDD	0.092	0.370	LT		0			0.01	0.0			0.0%		
123789-HxCDF	0.532	2.128	LT	EMPC	0.3			0.1	0.0			3.2%		
12378-PeCDD	0.110	0.441	0.296		0.3	0.3		1	0.3	0.3		32.0%	68.7%	
12378-PeCDF	0.133	0.533	0.370		0.4	0.4		0.05	0.0	0.0		2.1%	4.6%	
234678-HxCDF	3.572	14.288	LT	D	1.8			0.1	0.2			19.2%		
23478-PeCDF	0.259	1.036	LT	EMPC	0.1			0.5	0.1			5.3%		
2378-TCDD	0.217	0.869	LT		0.1			1	0.1			10.7%		
2378-TCDF	0.145	0.580	0.870	U	0.9	0.9	0.4	0.05	0.0	0.0	0.0	4.8%	10.3%	22.3%
OCDD	0.116	0.465	3.846		3.8	3.8	3.8	0	0	0	0	0%	0%	0%
OCDF	0.358	1.432	LT	EMPC	0.2			0.0001	0.0			0.0%		
PCB 126	0.256	1.023	12.589		12.6	12.6	12.6	0.005	0.1	0.1	0.1	6.7%	14.4%	70.3%
PCB 169	0.187	0.748	0.936		0.9	0.9	0.9	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 77	1.316	5.263	65.593		65.6	65.6	65.6	0.0001	0.0	0.0	0.0	0.7%	1.5%	7.3%
PCB 81	1.270	5.080	3.625		3.6	3.6		0.0005	0.0	0.0		0.2%	0.4%	

	TEQs		
Total	**Full**	**Partial**	**Quant**
All PCDDs/PCDFs	0.9	0.4	0
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1	0.5	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP11
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.021	0.085	0.761		0.8	0.8	0.8	0.001	0.0	0.0	0.0	0.1%	0.3%	0.3%
1234678-HpCDF	2.243	8.972	LT	D	1.1			0.01	0.0			1.2%		
1234789-HpCDF	0.026	0.103	LT		0			0.01	0			0%		
123478-HxCDD	0.048	0.192	0.338		0.3	0.3	0.3	0.5	0.2	0.2	0.2	16.1%	48.9%	65.0%
123478-HxCDF	0.215	0.860	LT		0.1			0.1	0.0			1.1%		
123678-HxCDD	0.042	0.169	0.103		0.1	0.1		0.01	0.0	0.0		0.1%	0.3%	
123678-HxCDF	0.235	0.940	LT	EMPC	0.1			0.1	0.0			1.1%		
123789-HxCDD	0.042	0.169	LT		0			0.01	0			0%		
123789-HxCDF	0.213	0.852	0.570		0.6	0.6		0.1	0.1	0.1		6.4%	19.6%	
12378-PeCDD	0.342	1.368	LT	EMPC	0.2			1	0.2			21.4%		
12378-PeCDF	0.248	0.992	LT	EMPC	0.1			0.05	0.0			0.5%		
234678-HxCDF	4.738	18.950	LT	D	2.4			0.1	0.2			25.7%		
23478-PeCDF	0.182	0.728	LT	EMPC	0.1			0.5	0.1			5.4%		
2378-TCDD	0.121	0.483	LT		0.1			1	0.1			10.7%		
2378-TCDF	0.081	0.324	0.730	U	0.7	0.7	0.4	0.05	0.0	0.0	0.0	3.8%	11.4%	8.7%
OCDD	0.031	0.125	2.884		2.9	2.9	2.9	0	0	0	0	0%	0%	0%
OCDF	0.289	1.156	LT	EMPC	0.1			0.0001	0.0			0.0%		
PCB 126	0.593	2.374	10.891		10.9	10.9	10.9	0.005	0.1	0.1	0.1	5.8%	17.8%	23.6%
PCB 169	0.236	0.942	1.167		1.2	1.2	1.2	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.524	2.097	40.740		40.7	40.7	40.7	0.0001	0.0	0.0	0.0	0.4%	1.3%	1.8%
PCB 81	0.513	2.054	2.808		2.8	2.8	2.8	0.0005	0.0	0.0	0.0	0.2%	0.5%	0.6%

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.9	0.2	0.2
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1	0.3	0.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP12
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	**MDL**	**MQL**	**Conc[c]**	**Flag/Qual[d]**	**Full**	**Partial**	**Quant**	**Fish**	**Full**	**Partial**	**Quant**	**Full**	**Partial**	**Quant**
1234678-HpCDD	0.003	0.012	1.013		1	1	1	0.001	0.0	0.0	0.0	0.1%	0.4%	0.4%
1234678-HpCDF	1.529	6.116	LT	D	0.8			0.01	0.0			1.2%		
1234789-HpCDF	0.046	0.182	LT		0			0.01	0			0%		
123478-HxCDD	0.005	0.018	0.271		0.3	0.3	0.3	0.5	0.2	0.2	0.2	22.3%	56.9%	59.3%
123478-HxCDF	0.266	1.063	LT		0.1			0.1	0.0			1.5%		
123678-HxCDD	0.121	0.484	LT	EMPC	0.1			0.01	0.0			0.1%		
123678-HxCDF	0.222	0.888	LT	EMPC	0.1			0.1	0.0			1.5%		
123789-HxCDD	0.052	0.208	LT		0			0.01	0			0%		
123789-HxCDF	0.554	2.216	LT	EMPC	0.3			0.1	0.0			4.5%		
12378-PeCDD	0.271	1.084	LT		0.1			1	0.1			14.9%		
12378-PeCDF	0.025	0.098	0.159		0.2	0.2	0.2	0.05	0.0	0.0	0.0	1.5%	3.8%	4.0%
234678-HxCDF	2.943	11.770	LT	D	1.5			0.1	0.2			22.3%		
23478-PeCDF	0.023	0.090	0.116		0.1	0.1	0.1	0.5	0.1	0.1	0.1	7.4%	19.0%	19.8%
2378-TCDD	0.128	0.512	LT		0.1			1	0.1			14.9%		
2378-TCDF	0.077	0.306	0.531	U	0.5	0.5	0.3	0.05	0.0	0.0	0.0	3.7%	9.5%	5.9%
OCDD	0.038	0.153	5.785		5.8	5.8	5.8	0	0	0	0	0%	0%	0%
OCDF	0.484	1.936	LT	EMPC	0.2			0.0001	0.0			0.0%		
PCB 126	0.309	1.235	4.916		4.9	4.9	4.9	0.005	0.0	0.0	0.0	3.6%	9.3%	9.7%
PCB 169	0.054	0.214	0.380		0.4	0.4	0.4	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.513	2.053	24.224		24.2	24.2	24.2	0.0001	0.0	0.0	0.0	0.4%	0.9%	1.0%
PCB 81	0.520	2.080	1.739		1.7	1.7		0.0005	0.0	0.0		0.1%	0.3%	

	TEQs		
Total	**Full**	**Partial**	**Quant**
All PCDDs/PCDFs	0.6	0.2	0.2
All PCBs	0	0	0
All PCDDs/PCDFs/PCBs	0.6	0.2	0.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP13
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.004	0.014	0.945		0.9	0.9	0.9	0.001	0.0	0.0	0.0	0.1%	0.5%	0.6%
1234678-HpCDF	3.659	14.636	LT	D	1.8			0.01	0.0			1.9%		
1234789-HpCDF	0.039	0.156	LT		0			0.01	0.0			0.0%		
123478-HxCDD	0.237	0.948	LT		0.1			0.5	0.1			5.2%		
123478-HxCDF	0.139	0.557	LT		0.1			0.1	0.0			1.0%		
123678-HxCDD	0.034	0.138	0.108		0.1	0.1		0.01	0.0	0.0		0.1%	0.5%	
123678-HxCDF	0.189	0.756	LT	EMPC	0.1			0.1	0.0			1.0%		
123789-HxCDD	0.034	0.136	LT		0			0.01	0.0			0.0%		
123789-HxCDF	0.152	0.607	0.625		0.6	0.6	0.6	0.1	0.1	0.1	0.1	6.3%	30.7%	38.1%
12378-PeCDD	0.445	1.780	LT	EMPC	0.2			1	0.2			21.0%		
12378-PeCDF	0.350	1.400	LT	EMPC	0.2			0.05	0.0			1.0%		
234678-HxCDF	5.240	20.960	LT	D	2.6			0.1	0.3			27.3%		
23478-PeCDF	0.382	1.528	LT	EMPC	0.2			0.5	0.1			10.5%		
2378-TCDD	0.228	0.912	LT		0.1			1	0.1			10.5%		
2378-TCDF	0.105	0.419	1.432	U	1.4	1.4	0.7	0.05	0.1	0.1	0.0	7.3%	35.9%	22.2%
OCDD	0.037	0.149	3.482		3.5	3.5	3.5	0	0	0	0	0%	0%	0%
OCDF	0.034	0.136	0.623		0.6	0.6	0.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.298	1.191	11.171		11.2	11.2	11.2	0.005	0.1	0.1	0.1	5.9%	28.7%	35.5%
PCB 169	0.168	0.673	0.587		0.6	0.6		0.00005	0.0	0.0		0.0%	0.0%	
PCB 77	1.572	6.288	56.197		56.2	56.2	56.2	0.0001	0.0	0.0	0.0	0.6%	2.9%	3.6%
PCB 81	1.509	6.036	3.237		3.2	3.2		0.0005	0.0	0.0		0.2%	0.8%	

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.9	0.1	0.1
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1	0.2	0.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP14
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	**MDL**	**MQL**	**Conc[c]**	**Flag/Qual[d]**	**Full**	**Partial**	**Quant**	**Fish**	**Full**	**Partial**	**Quant**	**Full**	**Partial**	**Quant**
1234678-HpCDD	0.010	0.039	0.948		0.9	0.9	0.9	0.001	0.0	0.0	0.0	0.1%	0.2%	0.2%
1234678-HpCDF	1.899	7.596	LT	D	0.9			0.01	0.0			0.8%		
1234789-HpCDF	0.146	0.583	LT		0.1			0.01	0.0			0.1%		
123478-HxCDD	0.077	0.308	0.418		0.4	0.4	0.4	0.5	0.2	0.2	0.2	17.4%	45.8%	49.1%
123478-HxCDF	0.364	1.455	LT		0.2			0.1	0.0			1.7%		
123678-HxCDD	0.182	0.728	LT	EMPC	0.1			0.01	0.0			0.1%		
123678-HxCDF	0.370	1.480	LT	EMPC	0.2			0.1	0.0			1.7%		
123789-HxCDD	0.163	0.652	LT		0.1			0.01	0.0			0.1%		
123789-HxCDF	0.684	2.736	LT	EMPC	0.3			0.1	0.0			2.6%		
12378-PeCDD	0.581	2.324	LT	EMPC	0.3			1	0.3			26.1%		
12378-PeCDF	0.321	1.284	LT	EMPC	0.2			0.05	0.0			0.9%		
234678-HxCDF	4.460	17.838	LT	D	2.2			0.1	0.2			19.1%		
23478-PeCDF	0.008	0.032	0.199		0.2	0.2	0.2	0.5	0.1	0.1	0.1	8.7%	22.9%	24.6%
2378-TCDD	0.188	0.751	LT		0.1			1	0.1			8.7%		
2378-TCDF	0.217	0.866	1.324	U	1.3	1.3	0.7	0.05	0.1	0.1	0.0	5.7%	14.9%	8.6%
OCDD	0.058	0.230	3.456		3.5	3.5	3.5	0	0	0	0	0%	0%	0%
OCDF	0.373	1.492	LT	EMPC	0.2			0.0001	0.0			0.0%		
PCB 126	0.467	1.869	12.654		12.7	12.7	12.7	0.005	0.1	0.1	0.1	5.5%	14.5%	15.6%
PCB 169	0.591	2.366	1.014		1	1		0.00005	0.0	0.0		0.0%	0.0%	
PCB 77	0.869	3.474	55.772		55.8	55.8	55.8	0.0001	0.0	0.0	0.0	0.5%	1.3%	1.4%
PCB 81	0.859	3.436	4.058		4.1	4.1	4.1	0.0005	0.0	0.0	0.0	0.2%	0.5%	0.5%

	TEQs		
Total	**Full**	**Partial**	**Quant**
All PCDDs/PCDFs	1.1	0.4	0.3
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1.2	0.5	0.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP15
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.007	0.029	0.769		0.8	0.8	0.8	0.001	0.0	0.0	0.0	0.1%	0.3%	0.8%
1234678-HpCDF	6.705	26.820	LT	D	3.4			0.01	0.0			3.1%		
1234789-HpCDF	0.071	0.284	LT		0			0.01	0			0%		
123478-HxCDD	0.273	1.092	LT	EMPC	0.1			0.5	0.1			4.6%		
123478-HxCDF	0.271	1.083	LT		0.1			0.1	0.0			0.9%		
123678-HxCDD	0.111	0.444	LT		0.1			0.01	0.0			0.1%		
123678-HxCDF	0.280	1.120	LT	EMPC	0.1			0.1	0.0			0.9%		
123789-HxCDD	0.088	0.352	LT		0			0.01	0			0%		
123789-HxCDF	0.299	1.196	0.592		0.6	0.6		0.1	0.1	0.1		5.5%	22.1%	
12378-PeCDD	0.317	1.268	LT	EMPC	0.2			1	0.2			18.2%		
12378-PeCDF	0.075	0.300	0.412		0.4	0.4	0.4	0.05	0.0	0.0	0.0	1.8%	7.4%	19.8%
234678-HxCDF	8.372	33.488	LT	D	4.2			0.1	0.4			38.3%		
23478-PeCDF	0.062	0.247	0.232		0.2	0.2		0.5	0.1	0.1		9.1%	36.9%	
2378-TCDD	0.126	0.502	LT		0.1			1	0.1			9.1%		
2378-TCDF	0.043	0.174	0.524	U	0.5	0.5	0.3	0.05	0.0	0.0	0.0	2.3%	9.2%	14.8%
OCDD	0.121	0.483	3.040		3	3	3	0	0	0	0	0%	0%	0%
OCDF	0.487	1.948	LT	EMPC	0.2			0.0001	0.0			0.0%		
PCB 126	0.382	1.528	11.927		11.9	11.9	11.9	0.005	0.1	0.1	0.1	5.4%	22.0%	58.9%
PCB 169	0.174	0.696	1.298		1.3	1.3	1.3	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 77	0.556	2.225	42.368		42.4	42.4	42.4	0.0001	0.0	0.0	0.0	0.4%	1.6%	4.2%
PCB 81	0.580	2.320	2.875		2.9	2.9	2.9	0.0005	0.0	0.0	0.0	0.1%	0.5%	1.4%

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	1	0.2	0
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1.1	0.3	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP16
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	**MDL**	**MQL**	**Conc[c]**	**Flag/Qual[d]**	**Full**	**Partial**	**Quant**	**Fish**	**Full**	**Partial**	**Quant**	**Full**	**Partial**	**Quant**
1234678-HpCDD	0.034	0.134	0.930		0.9	0.9	0.9	0.001	0.0	0.0	0.0	0.1%	0.2%	0.7%
1234678-HpCDF	3.801	15.204	LT	D	1.9			0.01	0.0			1.6%		
1234789-HpCDF	0.038	0.152	LT		0			0.01	0			0%		
123478-HxCDD	0.285	1.140	LT	EMPC	0.1			0.5	0.1			4.1%		
123478-HxCDF	0.274	1.096	LT		0.1			0.1	0.0			0.8%		
123678-HxCDD	0.005	0.019	0.148		0.1	0.1	0.1	0.01	0.0	0.0	0.0	0.1%	0.2%	0.8%
123678-HxCDF	0.264	1.056	LT	EMPC	0.1			0.1	0.0			0.8%		
123789-HxCDD	0.005	0.019	0.120		0.1	0.1	0.1	0.01	0.0	0.0	0.0	0.1%	0.2%	0.8%
123789-HxCDF	0.269	1.076	0.565		0.6	0.6		0.1	0.1	0.1		4.9%	14.5%	
12378-PeCDD	0.106	0.424	0.229		0.2	0.2		1	0.2	0.2		16.4%	48.4%	
12378-PeCDF	0.572	2.288	LT	EMPC	0.3			0.05	0.0			1.2%		
234678-HxCDF	9.942	39.768	LT	D	5			0.1	0.5			41.1%		
23478-PeCDF	0.377	1.508	LT	EMPC	0.2			0.5	0.1			8.2%		
2378-TCDD	0.163	0.650	LT		0.1			1	0.1			8.2%		
2378-TCDF	0.136	0.542	0.857	U	0.9	0.9	0.4	0.05	0.0	0.0	0.0	3.7%	10.9%	15.6%
OCDD	0.003	0.014	2.792		2.8	2.8	2.8	0	0	0	0	0%	0%	0%
OCDF	0.244	0.976	LT	EMPC	0.1			0.0001	0.0			0.0%		
PCB 126	0.201	0.804	19.126		19.1	19.1	19.1	0.005	0.1	0.1	0.1	7.8%	23.1%	74.6%
PCB 169	0.243	0.971	1.780		1.8	1.8	1.8	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.1%
PCB 77	1.137	4.547	71.038		71	71	71	0.0001	0.0	0.0	0.0	0.6%	1.7%	5.5%
PCB 81	1.064	4.257	4.673		4.7	4.7	4.7	0.0005	0.0	0.0	0.0	0.2%	0.6%	1.8%

	TEQs		
Total	**Full**	**Partial**	**Quant**
All PCDDs/PCDFs	1.1	0.3	0
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1.2	0.4	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP17
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.007	0.027	0.561		0.6	0.6	0.6	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	2.636	10.544	LT	D	1.3			0.01	0.0			1.3%		
1234789-HpCDF	0.033	0.132	LT		0			0.01	0			0%		
123478-HxCDD	0.032	0.127	0.201		0.2	0.2	0.2	0.5	0.1	0.1	0.1	10.3%	17.8%	18.7%
123478-HxCDF	0.215	0.860	LT	EMPC	0.1			0.1	0.0			1.0%		
123678-HxCDD	0.152	0.608	LT	EMPC	0.1			0.01	0.0			0.1%		
123678-HxCDF	0.226	0.904	LT	EMPC	0.1			0.1	0.0			1.0%		
123789-HxCDD	0.029	0.115	LT		0			0.01	0			0%		
123789-HxCDF	0.135	0.539	0.657		0.7	0.7	0.7	0.1	0.1	0.1	0.1	7.2%	12.5%	13.1%
12378-PeCDD	0.006	0.023	0.308		0.3	0.3	0.3	1	0.3	0.3	0.3	30.8%	53.5%	56.1%
12378-PeCDF	0.306	1.224	LT	EMPC	0.2			0.05	0.0			1.0%		
234678-HxCDF	4.471	17.884	LT	D	2.2			0.1	0.2			22.6%		
23478-PeCDF	0.201	0.804	LT	EMPC	0.1			0.5	0.1			5.1%		
2378-TCDD	0.200	0.800	LT	EMPC	0.1			1	0.1			10.3%		
2378-TCDF	0.085	0.342	0.972	U	1	1	0.5	0.05	0.1	0.1	0.0	5.1%	8.9%	4.7%
OCDD	0.008	0.031	2.370		2.4	2.4	2.4	0	0	0	0	0%	0%	0%
OCDF	0.054	0.216	0.389		0.4	0.4	0.4	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.373	1.490	7.305		7.3	7.3	7.3	0.005	0.0	0.0	0.0	3.7%	6.5%	6.8%
PCB 169	0.092	0.366	0.809		0.8	0.8	0.8	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	0.645	2.581	29.682		29.7	29.7	29.7	0.0001	0.0	0.0	0.0	0.3%	0.5%	0.6%
PCB 81	0.611	2.445	2.162		2.2	2.2		0.0005	0.0	0.0		0.1%	0.2%	

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.9	0.5	0.5
All PCBs	0	0	0
All PCDDs/PCDFs/PCBs	0.9	0.5	0.5

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP18
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	**MDL**	**MQL**	**Conc[c]**	**Flag/Qual[d]**	**Full**	**Partial**	**Quant**	**Fish**	**Full**	**Partial**	**Quant**	**Full**	**Partial**	**Quant**
1234678-HpCDD	0.005	0.020	0.855		0.9	0.9	0.9	0.001	0.0	0.0	0.0	0.1%	0.2%	0.3%
1234678-HpCDF	1.546	6.184	LT	D	0.8			0.01	0.0			0.8%		
1234789-HpCDF	0.057	0.227	LT		0			0.01	0			0%		
123478-HxCDD	0.045	0.179	0.372		0.4	0.4	0.4	0.5	0.2	0.2	0.2	20.4%	36.3%	57.0%
123478-HxCDF	0.099	0.395	0.228		0.2	0.2		0.1	0.0	0.0		2.0%	3.6%	
123678-HxCDD	0.162	0.648	LT	EMPC	0.1			0.01	0.0			0.1%		
123678-HxCDF	0.272	1.088	LT	EMPC	0.1			0.1	0.0			1.0%		
123789-HxCDD	0.101	0.404	LT	EMPC	0.1			0.01	0.0			0.1%		
123789-HxCDF	0.604	2.416	LT	EMPC	0.3			0.1	0.0			3.1%		
12378-PeCDD	0.399	1.596	LT	EMPC	0.2			1	0.2			20.4%		
12378-PeCDF	0.440	1.760	LT	EMPC	0.2			0.05	0.0			1.0%		
234678-HxCDF	3.384	13.536	LT	D	1.7			0.1	0.2			17.3%		
23478-PeCDF	0.093	0.373	0.313		0.3	0.3		0.5	0.2	0.2		15.3%	27.2%	
2378-TCDD	0.070	0.279	LT		0			1	0			0%		
2378-TCDF	0.133	0.534	1.241	U	1.2	1.2	0.6	0.05	0.1	0.1	0.0	6.1%	10.9%	8.5%
OCDD	0.029	0.116	2.619		2.6	2.6	2.6	0	0	0	0	0%	0%	0%
OCDF	0.240	0.960	LT	EMPC	0.1			0.0001	0.0			0.0%		
PCB 126	0.226	0.904	22.040		22	22	22	0.005	0.1	0.1	0.1	11.2%	20.0%	31.3%
PCB 169	0.241	0.966	2.099		2.1	2.1	2.1	0.00005	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 77	1.052	4.206	73.984		74	74	74	0.0001	0.0	0.0	0.0	0.8%	1.3%	2.1%
PCB 81	1.082	4.328	5.156		5.2	5.2	5.2	0.0005	0.0	0.0	0.0	0.3%	0.5%	0.7%

	TEQs		
Total	**Full**	**Partial**	**Quant**
All PCDDs/PCDFs	0.9	0.4	0.2
All PCBs	0.1	0.1	0.1
All PCDDs/PCDFs/PCBs	1	0.5	0.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP19
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.003	0.014	0.453		0.5	0.5	0.5	0.001	0.0	0.0	0.0	0.1%	0.1%	0.1%
1234678-HpCDF	0.372	1.488	LT	D	0.2			0.01	0.0			0.3%		
1234789-HpCDF	0.062	0.248	LT		0			0.01	0			0%		
123478-HxCDD	0.291	1.164	LT	EMPC	0.1			0.5	0.1			7.4%		
123478-HxCDF	0.117	0.468	LT	EMPC	0.1			0.1	0.0			1.5%		
123678-HxCDD	0.036	0.142	LT		0			0.01	0			0%		
123678-HxCDF	0.210	0.840	LT	EMPC	0.1			0.1	0.0			1.5%		
123789-HxCDD	0.036	0.142	LT		0			0.01	0			0%		
123789-HxCDF	0.096	0.386	0.588		0.6	0.6	0.6	0.1	0.1	0.1	0.1	8.9%	16.4%	16.5%
12378-PeCDD	0.009	0.034	0.319		0.3	0.3	0.3	1	0.3	0.3	0.3	44.3%	82.2%	82.4%
12378-PeCDF	0.247	0.988	LT	EMPC	0.1			0.05	0.0			0.7%		
234678-HxCDF	1.089	4.356	LT	D	0.5			0.1	0.1			7.4%		
23478-PeCDF	0.129	0.516	LT	EMPC	0.1			0.5	0.1			7.4%		
2378-TCDD	0.182	0.729	LT		0.1			1	0.1			14.8%		
2378-TCDF	0.162	0.649	LT	U	0.1			0.05	0.0			0.7%		
OCDD	0.003	0.013	1.383		1.4	1.4	1.4	0	0.0	0	0	0%	0%	0%
OCDF	0.249	0.996	LT	EMPC	0.1			0.0001	0.0			0.0%		
PCB 126	0.246	0.986	6.182		6.2			0.005	0.0			4.6%		
PCB 169	0.199	0.795	0.340		0.3	0.3		0.00005	0.0	0.0		0.0%	0.0%	
PCB 77	0.711	2.844	33.654		33.7	33.7	33.7	0.0001	0.0	0.0	0.0	0.5%	0.9%	0.9%
PCB 81	0.696	2.785	2.110		2.1	2.1		0.0005	0.0	0.0		0.2%	0.3%	

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.6	0.4	0.4
All PCBs	0	0	0
All PCDDs/PCDFs/PCBs	0.6	0.4	0.4

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H96DCP20
SAMPLE TYPE: Carp eggs
LOCATION: On-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	**MDL**	**MQL**	**Conc[c]**	**Flag/Qual[d]**	**Full**	**Partial**	**Quant**	**Fish**	**Full**	**Partial**	**Quant**	**Full**	**Partial**	**Quant**
1234678-HpCDD	0.006	0.023	0.743		0.7	0.7	0.7	0.001	0.0	0.0	0.0	0.1%	0.2%	0.3%
1234678-HpCDF	1.701	6.804	LT	D	0.9			0.01	0.0			1.2%		
1234789-HpCDF	0.032	0.129	LT		0			0.01	0.0			0.0%		
123478-HxCDD	0.046	0.183	0.259		0.3	0.3	0.3	0.5	0.2	0.2	0.2	19.9%	49.1%	66.9%
123478-HxCDF	0.107	0.428	LT		0.1			0.1	0.0			1.3%		
123678-HxCDD	0.039	0.157	0.124		0.1	0.1	0	0.01	0.0	0.0	0.0	0.1%	0.3%	0.0%
123678-HxCDF	0.304	1.216	LT	EMPC	0.2			0.1	0.0			2.6%		
123789-HxCDD	0.040	0.160	LT		0			0.01	0.0			0.0%		
123789-HxCDF	0.592	2.368	LT	EMPC	0.3			0.1	0.0			4.0%		
12378-PeCDD	0.281	1.124	LT	EMPC	0.1			1	0.1			13.2%		
12378-PeCDF	0.073	0.294	0.336		0.3	0.3	0.3	0.05	0.0	0.0	0.0	2.0%	4.9%	6.7%
234678-HxCDF	3.507	14.028	LT	D	1.8			0.1	0.2			23.8%		
23478-PeCDF	0.064	0.255	0.141		0.1	0.1		0.5	0.1	0.1		6.6%	16.4%	
2378-TCDD	0.198	0.791	LT		0.1			1	0.1			13.2%		
2378-TCDF	0.123	0.491	1.069	U	1.1	1.1	0.5	0.05	0.1	0.1	0.0	7.3%	18.0%	11.1%
OCDD	0.005	0.022	3.193		3.2	3.2	3.2	0	0	0	0	0%	0%	0%
OCDF	0.037	0.147	0.598		0.6	0.6	0.6	0.0001	0.0	0.0	0.0	0.0%	0.0%	0.0%
PCB 126	0.297	1.190	6.106		6.1	6.1	6.1	0.005	0.0	0.0	0.0	4.0%	10.0%	13.6%
PCB 169	0.719	2.876	LT	EMPC	0.4			0.00005	0.0			0.0%		
PCB 77	0.697	2.788	29.562		29.6	29.6	29.6	0.0001	0.0	0.0	0.0	0.4%	1.0%	1.3%
PCB 81	1.945	7.780	LT	EMPC	1			0.0005	0.0			0.1%		

	TEQs		
Total	**Full**	**Partial**	**Quant**
All PCDDs/PCDFs	0.7	0.3	0.2
All PCBs	0	0	0
All PCDDs/PCDFs/PCBs	0.7	0.3	0.2

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H97BCP10E
SAMPLE TYPE: Carp eggs
LOCATION: Off-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.720	2.880	LT	EMPC	0.4			0.001	0.0			0.1%		
1234678-HpCDF	0.668	2.672	LT	D	0.3			0.01	0.0			0.5%		
1234789-HpCDF	0.065	0.260	LT		0			0.01	0			0%		
123478-HxCDD	0.008	0.033	0.216		0.2	0.2	0.2	0.5	0.1	0.1	0.1	17.3%	26.0%	33.3%
123478-HxCDF	0.205	0.819	LT		0.1			0.1	0.0			1.7%		
123678-HxCDD	0.062	0.248	LT		0			0.01	0			0%		
123678-HxCDF	0.168	0.670	0.225		0.2	0.2		0.1	0.0	0.0		3.5%	5.2%	
123789-HxCDD	0.051	0.204	LT		0			0.01	0			0%		
123789-HxCDF	0.213	0.850	0.642		0.6	0.6		0.1	0.1	0.1		10.4%	15.6%	
12378-PeCDD	0.009	0.037	0.237		0.2	0.2	0.2	1	0.2	0.2	0.2	34.6%	52.0%	66.5%
12378-PeCDF	0.126	0.504	LT		0.1			0.05	0.0			0.9%		
234678-HxCDF	1.443	5.772	LT	D	0.7			0.1	0.1			12.1%		
23478-PeCDF	0.092	0.369	LT		0			0.5	0			0%		
2378-TCDD	0.239	0.956	LT		0.1			1	0.1			17.3%		
2378-TCDF	0.298	1.192	LT	EMPC, U	0.1			0.05	0.0			0.9%		
OCDD	0.036	0.144	3.408		3.4	3.4	3.4	0	0	0	0	0%	0%	0%
OCDF	0.353	1.412	LT	EMPC	0.2			0.0001	0.0			0.0%		
PCB 126	0.624	2.496	0.833		0.8	0.8		0.005	0.0	0.0		0.7%	1.0%	
PCB 169	0.445	1.780	LT	EMPC	0.2			0.00005	0.0			0.0%		
PCB 77	0.384	1.536	5.814		5.8	5.8	5.8	0.0001	0.0	0.0	0.0	0.1%	0.2%	0.2%
PCB 81	0.367	1.467	0.703		0.7	0.7		0.0005	0.0	0.0		0.1%	0.1%	

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.6	0.4	0.3
All PCBs	0	0	0
All PCDDs/PCDFs/PCBs	0.6	0.4	0.3

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

CARP EGGS
RAW DATA AND CALCULATION OF TEQ VALUES

SAMPLE NUMBER: H97CP13E
SAMPLE TYPE: Carp eggs
LOCATION: Off-post

	Analytical Limits		Laboratory Results		Adjusted Concentrations[a]			WHO TEFs	Calculated TEQs[b]			Percent of total TEQ		
Analyte	MDL	MQL	Conc[c]	Flag/Qual[d]	Full	Partial	Quant	Fish	Full	Partial	Quant	Full	Partial	Quant
1234678-HpCDD	0.012	0.048	0.596		0.6	0.6	0.6	0.001	0.0	0.0	0.0	0.1%	0.2%	0.5%
1234678-HpCDF	1.456	5.824	LT	D	0.7			0.01	0.0			1.3%		
1234789-HpCDF	0.026	0.103	LT		0			0.01	0			0%		
123478-HxCDD	0.006	0.024	0.224		0.2	0.2	0.2	0.5	0.1	0.1	0.1	18.1%	37.1%	83.9%
123478-HxCDF	0.143	0.572	LT		0.1			0.1	0.0			1.8%		
123678-HxCDD	0.158	0.632	LT	EMPC	0.1			0.01	0.0			0.2%		
123678-HxCDF	0.175	0.700	LT	EMPC	0.1			0.1	0.0			1.8%		
123789-HxCDD	0.032	0.128	LT		0			0.01	0			0%		
123789-HxCDF	0.154	0.616	0.512		0.5	0.5		0.1	0.1	0.1		9.0%	18.5%	
12378-PeCDD	0.205	0.820	LT		0.1			1	0.1			18.1%		
12378-PeCDF	0.151	0.604	LT	EMPC	0.1			0.05	0.0			0.9%		
234678-HxCDF	1.699	6.796	LT	D	0.8			0.1	0.1			14.5%		
23478-PeCDF	0.117	0.468	LT	EMPC	0.1			0.5	0.1			9.0%		
2378-TCDD	0.093	0.372	0.055		0.1	0.1		1	0.1	0.1		18.1%	37.1%	
2378-TCDF	0.749	2.996	LT	EMPC, U	0.4			0.05	0.0			3.6%		
OCDD	0.067	0.270	2.697		2.7	2.7	2.7	0	0	0	0	0%	0%	0%
OCDF	0.275	1.100	LT	EMPC	0.1			0.0001	0.0			0.0%		
PCB 126	0.269	1.075	3.272		3.3	3.3	3.3	0.005	0.0	0.0	0.0	3.0%	6.1%	13.8%
PCB 169	0.199	0.797	0.377		0.4	0.4		0.00005	0.0	0.0		0.0%	0.0%	
PCB 77	0.523	2.092	21.157		21.2	21.2	21.2	0.0001	0.0	0.0	0.0	0.4%	0.8%	1.8%
PCB 81	0.521	2.083	1.151		1.2	1.2		0.0005	0.0	0.0		0.1%	0.2%	

	TEQs		
Total	Full	Partial	Quant
All PCDDs/PCDFs	0.5	0.3	0.1
All PCBs	0	0	0
All PCDDs/PCDFs/PCBs	0.5	0.3	0.1

All concentrations and TEQs are expressed in parts per trillion (ppt).

[a] A description of data subsets is found in Section 4.0. Based on the laboratory analytical detection limit of 1 ppt, adjusted concentrations are rounded to the nearest tenth.
[b] Calculated TEQs, the product of the laboratory adjusted concentration and WHO TEFs (1998), are expressed to the nearest tenth, values expressed as 0.0 are less than 0.05. The summation of all PCDDs/PCDFs, PCBs and PCDDs/PCDFs/PCBs for each sample is rounded to the nearest tenth. Shaded cells are the results used to derive sample total TEQs for dioxins and furans.
[c] Analytical laboratory concentration results are expressed to the nearest one-thousandth.
[d] Definitions for flags and qualifiers are found on page 1 of Appendix C-1.

Appendix D

H4IIe-Luc Bioassay Results (TCDD-EQs) for Tissue Samples

Table D-1. American kestrel eggs H4IIE-luc Bioassay Data

Sample Name	Location	On/Off Post	Collection Date	TCDD-EQ (ppt)
AKEG04BL	Barr Lake	Off-post	4/29/98	< 2
AKEG03BL	Barr Lake	Off-post	4/29/98	< 13
AKEG29NW	Section 29 NW	On-post	5/11/98	< 2
AKEG06CC	Cherry Creek Reservoir	Off-post	5/8/98	< 3
AKEG6NW	Section 6 NW	On-post	4/22/98	< 1
AKEG006	Trip blank	QC	4/22/98	< 1
AKEG12NW	Section 12 NW	On-post	5/11/98	62
AKEG3NW	Section 3 NW	On-post	4/27/98	11
AKEG009	Trip blank	QC	5/11/98	< 1
AKEG05CC	Cherry Creek Reservoir	Off-post	4/23/98	< 3
AKEG31NW	Section 31 NW	On-post	5/11/98	< 2
AKEG02AR	Aurora Reservoir	Off-post	5/14/98	82
AKEG013	Vehicle blank	QC	5/14/98	< 4
AKEG20NW	Section 20 NW	On-post	5/7/98	< 1
AKEG04NW	Section 4 NW	On-post	5/9/98	< 1
AKEG10CC	Cherry Creek Reservoir	Off-post	4/23/98	< 5
AKEG35NE	Section 35 NE	On-post	5/12/98	< 2
AKEG32SW	Section 32 SW	On-post	5/7/98	< 1
AKEG019	Vehicle blank	QC	5/7/98	< 3
AKEG12SW	Section 12 SW	On-post	4/27/98	< 2
AKEG04CC	Cherry Creek Reservoir	Off-post	4/23/98	< 1
AKEG05NE	Section 5 NE	On-post	5/11/98	< 1
AKEG023	Spike	QC	5/11/98	< 1
AKEG2ONE	Section 20 NE	On-post	5/11/98	< 5
AKEG8SW	Section 8 SW	On-post	4/22/98	< 5
AKEG026	Spike	QC	4/22/98	< 1
AKEG2NW	Section 2 NW	On-post	4/22/98	< 10
AKEG01BL	Barr Lake	Off-post	4/29/98	< 7
AKEG34NW	Section 34 NW	On-post	4/28/98	< 10
AKEG8NE	Section 8 NE	On-post	4/28/98	< 4
AKEG01AR	Aurora Reservoir	Off-post	4/29/98	< 8

Table D-1. American kestrel eggs H4IIE-luc bioassay data (Concluded)

Sample Name	Location	On/Off Post	Collection Date	TCDD-EQ (ppt)
AKEG05ACP	Adams County Fairground	Off-post	4/30/98	< 3
AKEG07CC	Cherry Creek Reservoir	Off-post	4/23/98	13
AKEG034	Spike	QC	4/23/98	< 1
AKEG08CC	Cherry Creek Reservoir	Off-post	4/23/98	< 5
AKEG11SW	Section 11 SW	On-post	4/28/98	< 12
AKEG33NW	Section 33 NW	On-post	4/28/98	< 5
AKEG11NW	Section 11 NW	On-post	4/28/98	< 7
AKEG29NE	Section 29 NE	On-post	4/22/98	< 12
AKEG35SE	Section 35 SE	On-post	4/28/98	< 5
AKEG01RC	Riverside Cemetary	Off-post	4/22/98	122
AKEG042	Spike	QC	4/29/98	< 11
AKEG03AR	Aurora Reservoir	Off-post	4/29/98	< 6
AKEG01YP	York Street Salvage Ponds	Off-post	4/22/98	< 3
AKEG32NW	Section 32 NW	On-post	4/22/98	< 3
AKEG046	Spike	QC	4/30/98	< 2
AKEG01ACP	Adams County Fairground	Off-post	4/30/98	< 2
AKEG03NW	Section 3 NW	On-post	4/22/98	< 5
AKEG35NW	Section 35 NW	On-post	4/30/98	< 2
AKEG25NW	Section 25 NW	On-post	4/30/98	< 4
AKEG26NW	Section 26 NW	On-post	4/22/98	< 4
AKEG19NW	Section 19 NW	On-post	4/22/98	< 5
AKEG053	Spike	QC	4/22/98	< 14
AKEG32NE	Section 32 NE	On-post	4/22/98	< 4
AKEG055	Blank	QC	4/22/98	< 7
AKEG056	Blank	QC	4/22/98	< 5
AKEG30NW	Section 30 NW	On-post	4/22/98	< 7
AKEG27NW	Section 27 NW	On-post	4/22/98	< 11

Table D-2. Great horned owl livers H4IIE-luc bioassay data

Sample Name	Location	On/Off Post	Collection Date	Age	TCDD-EQ (ppt)
96FGH162	Section 21 (NE of Arsenal)	On-post	10/6/95	Juvenile	< 5
96FGH002	Off-post Groundwater Treatment Plant	On-post	2/1/96	Adult	443
96FGH007	Section 2 NE (Building 242)	On-post	3/26/96	Adult	1072
96FGH017	Section 1 NE (South of Hydra Shed)	On-post	4/15/96	Adult	257
96FGH026	Section 1 (Building 252)	On-post	5/6/96	Juvenile	119
96FGH027	Section 1 (Building 252)	On-post	5/6/96	Juvenile	< 15
96FGH044	South Plants	On-post	5/16/96	Juvenile	< 1
96FGH144	Section 1 (South of South Plants)	On-post	7/3/96	Adult	188
96FGH190	Section 4 SW	On-post	7/20/96	Juvenile	< 1
96FGH231	Section 23 SW	On-post	9/4/96	Unknown	< 10
96FGH232	Section 23 SW	On-post	9/4/96	Unknown	< 1
96FGH250	Section 36	On-post	11/1/96	Unknown	< 6
96FGHL217	Section 31 SW	On-post	8/12/96	Juvenile	< 4
96FGHL219	Section 34 (Toxic Storage Yard)	On-post	8/16/96	Juvenile	< 5
GHL31SE96	Section 31 SE	On-post	6/6/96	Juvenile	< 2
GHL34SE96	Section 34 SE	On-post	5/21/96	Juvenile	< 8
96RFGH01	Colorado Springs	Off-post	4/30/96	Adult	< 1
96RFGH02	Boulder	Off-post	4/26/96	Juvenile	< 2
96RFGH03	Boulder	Off-post	4/14/96	Adult	< 16
96RFGH04	Sedalia	Off-post	5/18/96	Juvenile	< 4
96RFGH05	Fountain	Off-post	4/23/96	Adult	< 4
96RFGH07	Tower Rd. at 104th St.	Off-post	Apr-96	Adult	< 5
96RFGH09	Ft. Morgan	Off-post	Jun-96	Juvenile	< 19
96RFGH10	Littleton	Off-post	7/31/96	Juvenile	< 2
96RFGH11	Byers	Off-post	5/14/96	Juvenile	< 1
96RFGH12	Fleming	Off-post	4/1/96	Adult	187

Table D-3. Carp eggs H4IIE-luc bioassay data

Sample Name	On/Off Post	Collection Date	TCDD-EQ (ppt)
H96DCP01E	On-post	10/16/96	< 6
H96DCP02E	On-post	10/16/96	< 6
H96DCP06E	On-post	10/16/96	< 3
H96DCP07E	On-post	10/16/96	< 8
H96DCP08E	On-post	10/16/96	< 15
H96DCP10	On-post	8/19/96	< 5
H96DCP11	On-post	8/19/96	< 3
H96DCP12	On-post	8/19/96	< 5
H96DCP13	On-post	8/19/96	38
H96DCP14	On-post	8/19/96	2
H96DCP15	On-post	8/19/96	< 4
H96DCP16	On-post	8/19/96	< 1
H96DCP17	On-post	8/19/96	< 5
H96DCP18	On-post	8/19/96	28
H96DCP19	On-post	8/19/96	< 2
H96DCP20	On-post	8/19/96	< 1
H97BCP10E	Off-post	4/27/97	< 3
H97BCP13E	Off-post	6/13/97	< 2

Appendix E

Statistical Analysis Output

Statistical Ouputs

NORMALITY TESTS FOR KESTREL TEQ DATA

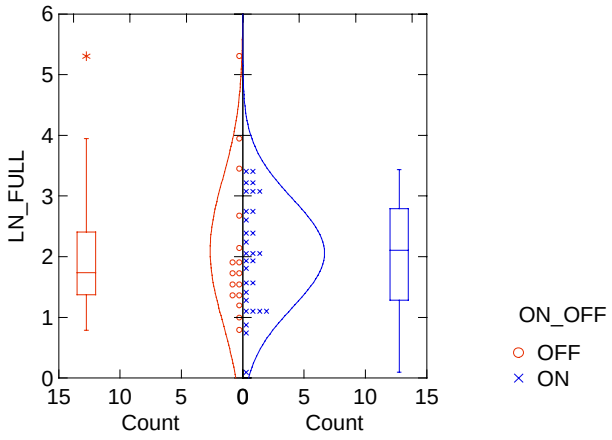
```
>KS FULL QUANT LN_FULL LN_QUAN / LILLIEFORS
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL            46.00000     0.32058        0.00000
   QUANT           46.00000     0.32999        0.00000
   LN_FULL         46.00000     0.10447        0.22547
   LN_QUAN         44.00000     0.14223        0.02577
>KS FULL QUANT LN_FULL LN_QUAN / LILLIEFORS

The following results are for:
   C_P$         = R
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL            16.00000     0.37570        0.00000
   QUANT           16.00000     0.36397        0.00000
   LN_FULL         16.00000     0.24419        0.01161
   LN_QUAN         16.00000     0.12454        0.81933

The following results are for:
   C_P$         = P
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL            19.00000     0.19174        0.06429
   QUANT           19.00000     0.24186        0.00469
   LN_FULL         19.00000     0.11034        0.88078
   LN_QUAN         17.00000     0.11890        0.84907

The following results are for:
   C_P$         = C
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL            11.00000     0.19686        0.29192
   QUANT           11.00000     0.22786        0.11547
   LN_FULL         11.00000     0.13705        1.00000
   LN_QUAN         11.00000     0.18039        0.44310
```

T-TEST ON KESTREL TEQ DATA

```
>TEST LN_FULL LN_QUAN * ON_OFF$
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Two-sample t test on LN_FULL grouped by ON_OFF$
```

Group	N	Mean	SD
OFF	16	2.10259	1.19986
ON	30	2.06020	0.89807

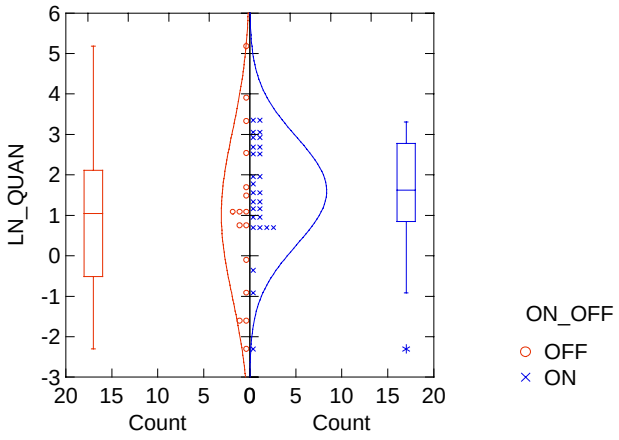
```
     Separate Variance t =      0.12401 df =   24.2    Prob =      0.90233
     Difference in Means =      0.04239   95.00% CI =   -0.66287 to    0.74765
       Pooled Variance t =      0.13543 df =   44      Prob =      0.89289
     Difference in Means =      0.04239   95.00% CI =   -0.58844 to    0.67323
```




```
Two-sample t test on LN_QUAN grouped by ON_OFF$
```

Group	N	Mean	SD
OFF	16	1.02037	2.06487
ON	28	1.60179	1.33686

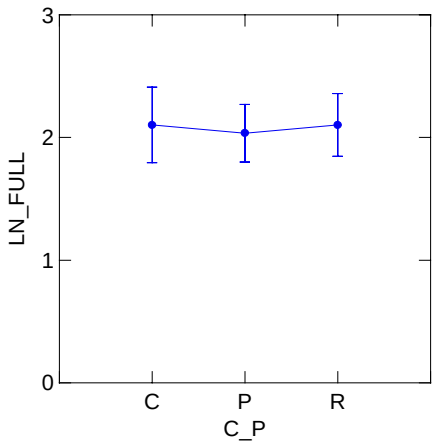
```
     Separate Variance t =     -1.01165 df =   22.3    Prob =      0.32254
     Difference in Means =     -0.58142   95.00% CI =   -1.77229 to    0.60945

       Pooled Variance t =     -1.13504 df =   42      Prob =      0.26279
     Difference in Means =     -0.58142   95.00% CI =   -1.61517 to    0.45233
```



ANOVA and Dunnets on Kestrels Including case 28 – Sample AKEG012

```
>GLM
>MODEL LN_FULL = CONSTANT + C_P$

>ESTIMATE
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Effects coding used for categorical variables in model.
Categorical values encountered during processing are:
C_P$ (3 levels)
   C, P, R

Dep Var: LN_FULL   N: 46   Multiple R: 0.03323   Squared multiple R: 0.00110

                          Analysis of Variance
Source             Sum-of-Squares   df  Mean-Square     F-ratio       P
 C_P$                     0.04971     2      0.02485     0.02377     0.97652
 Error                   44.95341    43      1.04543
-------------------------------------------------------------------------------
```

Least Squares Means



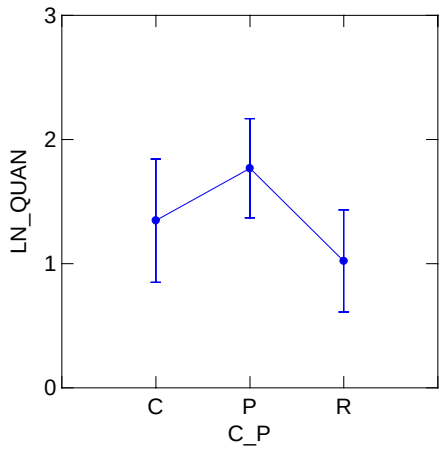

```
*** WARNING ***
Case           28 is an outlier        (Studentized Residual =      3.67342)

Durbin-Watson D Statistic     1.845
First Order Autocorrelation   0.062
>HYPOTHESIS
>POST C_P$/ DUNNETT ONE CONTROL="R"
COL/
ROW C_P$
  1  C
  2  P
  3  R
Using least squares means.
Post Hoc test of LN_FULL
Dunnett Test with control =      3.00000
>TEST
-------------------------------------------------------------------------------
Using model MSE of 1.045 with 43 df.
Matrix of mean differences from control:
              1       -0.00018
              2       -0.06683
              3        0.00000

Dunnett One Sided Test.
Matrix of pairwise comparison probabilities:

              1        0.50000
              2        0.48683
              3        1.00000
-------------------------------------------------------------------------------

>GLM
>MODEL LN_QUAN = CONSTANT + C_P$

>ESTIMATE
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Effects coding used for categorical variables in model.
```

```
Categorical values encountered during processing are:
C_P$ (3 levels)
   C, P, R
2 case(s) deleted due to missing data.

Dep Var: LN_QUAN   N: 44   Multiple R: 0.19991   Squared multiple R: 0.03996
```

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
C_P$	4.62171	2	2.31086	0.85333	0.43342
Error	111.02951	41	2.70804		

Least Squares Means

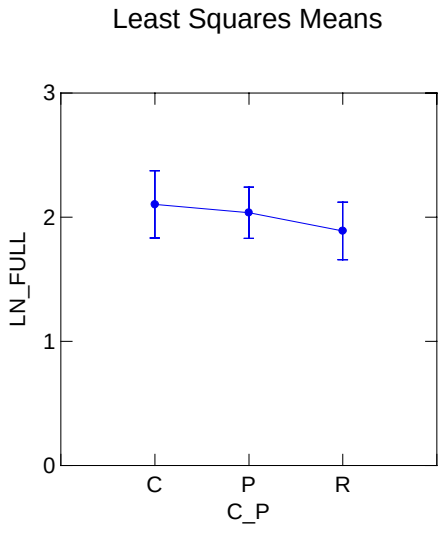



```
Durbin-Watson D Statistic     1.619
First Order Autocorrelation   0.181
>HYPOTHESIS
>POST C_P$/ DUNNETT ONE CONTROL="R"
COL/
ROW C_P$
  1  C
  2  P
  3  R
Using least squares means.
Post Hoc test of LN_QUAN
Dunnett Test with control =      3.00000

>TEST
```

```
-------------------------------------------------------------------------------
Using model MSE of 2.708 with 41 df.
Matrix of mean differences from control:
              1        0.32624
              2        0.74654
              3        0.00000

Dunnett One Sided Test.
Matrix of pairwise comparison probabilities:

              1        0.41775
              2        0.16818
              3        1.00000
-------------------------------------------------------------------------------
```

ANOVA and Dunnets on Kestrels Excluding case 28 – Sample AKEG012

```
>SELECT (MEASURE$= "PCDD/PCDF") AND (SITE$<> "AKEG012")
>GLM
>MODEL LN_FULL = CONSTANT + C_P$

>ESTIMATE
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF") AND (SITE$<> "AKEG012")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
C_P$ (3 levels)
   C, P, R

Dep Var: LN_FULL   N: 45   Multiple R: 0.09704   Squared multiple R: 0.00942

                          Analysis of Variance
Source             Sum-of-Squares   df  Mean-Square     F-ratio       P
C_P$                      0.32344     2      0.16172     0.19964     0.81980
Error                    34.02247    42      0.81006
-------------------------------------------------------------------------------
```




```
Durbin-Watson D Statistic     1.580
```

```
First Order Autocorrelation   0.190
>HYPOTHESIS
>POST C_P$/ DUNNETT ONE CONTROL="R"
COL/
ROW C_P$
  1  C
  2  P
  3  R
Using least squares means.
Post Hoc test of LN_FULL
Dunnett Test with control =      3.00000
>TEST
-------------------------------------------------------------------------------
Using model MSE of 0.810 with 42 df.
Matrix of mean differences from control:
              1        0.21324
              2        0.14658
              3        0.00000

Dunnett One Sided Test.
Matrix of pairwise comparison probabilities:

              1        0.38877
              2        0.42658
              3        1.00000
```

Normality tests for kestrel TCDD-EQ data

```
>USE "D:\PAUL\Projects\RMA\absolute\kestrel bioassay.SYD"
SYSTAT Rectangular file D:\PAUL\Projects\RMA\absolute\kestrel bioassay.SYD,
created Thu Aug 10, 2000 at 16:47:14, contains variables:

 SAMP$     SITE$     TCDDEQ_MAX    TCDDEQ_FULL   TCDDEQ_PART   LN_MAX
 LN_FULL   LN_PART   ON_OFF$       MAX_15        FULL_15
>ESAVE "C:\Documents and Settings\jonespa7\Desktop\rma report\kestrel bioassay.SYD

  46 cases and 11 variables processed and saved.

>USE "C:\Documents and Settings\jonespa7\Desktop\rma report\kestrel bioassay.SYD"
SYSTAT Rectangular file C:\Documents and Settings\jonespa7\Desktop\rma report\kestrel
bioassay.SYD,
created Thu Sep 07, 2000 at 02:08:54, contains variables:

 SAMP$     SITE$     TCDDEQ_MAX    TCDDEQ_FULL   TCDDEQ_PART   LN_MAX
 LN_FULL   LN_PART   ON_OFF$       MAX_15        FULL_15
>NPAR

>KS TCDDEQ_FULL LN_FULL / LILLIEFORS

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQ_FULL     46.00000     0.42573        0.00000
   LN_FULL         46.00000     0.16135        0.00421

>BY SITE$

>KS TCDDEQ_FULL LN_FULL / LILLIEFORS

The following results are for:
   SITE$        = R
```

```
Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQ_FULL     16.00000     0.41489        0.00000
   LN_FULL         16.00000     0.22299        0.03248

The following results are for:
   SITE$        = P
Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQ_FULL     19.00000     0.30507        0.00006
   LN_FULL         19.00000     0.14250        0.39878

The following results are for:
   SITE$        = C
Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQ_FULL     11.00000     0.46705        0.00000
   LN_FULL         11.00000     0.20775        0.21526
```

t-test on TCDD-EQ in kestrel eggs

```
>TEST LN_FULL * ON_OFF$
Two-sample t test on LN_FULL grouped by ON_OFF$
```

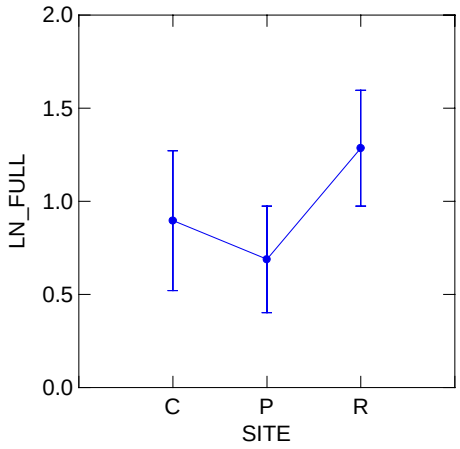
Group	N	Mean	SD
O	30	0.76383	1.06755
R	16	1.28450	1.50247

```
     Separate Variance t =     -1.23038 df =   23.3    Prob =      0.23084
     Difference in Means =     -0.52067   95.00% CI =   -1.39547 to    0.35413

       Pooled Variance t =     -1.36389 df =   44      Prob =      0.17954
     Difference in Means =     -0.52067   95.00% CI =   -1.29004 to    0.24870
```

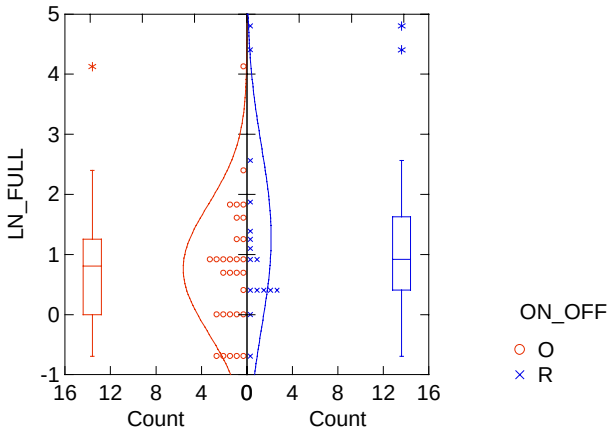
ANOVA and Dunnetts on TCDD-EQ in kestrel eggs

```
>MODEL LN_FULL = CONSTANT + SITE$
>ESTIMATE

Effects coding used for categorical variables in model.
Categorical values encountered during processing are:
SITE$ (3 levels)
   C, P, R

Dep Var: LN_FULL   N: 46   Multiple R: 0.21186   Squared multiple R: 0.04489

                          Analysis of Variance
Source             Sum-of-Squares   df  Mean-Square     F-ratio       P

SITE$                     3.13038     2      1.56519     1.01041     0.37255

Error                    66.60987    43      1.54907

-------------------------------------------------------------------------------
```

Least Squares Means




```
*** WARNING ***
Case           13 is an outlier        (Studentized Residual =      3.22378)

Durbin-Watson D Statistic     2.343
First Order Autocorrelation  -0.178
>HYPOTHESIS
>POST SITE$/ DUNNETT ONE CONTROL="R"
COL/
ROW SITE$
  1  C
  2  P
  3  R
Using least squares means.
Post Hoc test of LN_FULL
Dunnett Test with control =      3.00000

>TEST
-------------------------------------------------------------------------------

Using model MSE of 1.549 with 43 df.
Matrix of mean differences from control:
              1       -0.38890
              2       -0.59695
              3        0.00000

Dunnett One Sided Test.
Matrix of pairwise comparison probabilities:

              1        0.32301
              2        0.14032
              3        1.00000
-------------------------------------------------------------------------------
```



PCA for kestrel TEQs

SYSTAT Rectangular file C:\WINDOWS\Desktop\rma report\Kestrel pca.SYD,
created Mon Sep 11, 2000 at 16:05:58, contains variables:

SAMP$	SITE$	ON_OFF$	TYPE$	D1234678	F1234678
F1234789	D123478	F123478	D123678	F123678	D123789
F123789	D12378	F12378	F234678	F23478	D2378
F2378	OCDD	OCDF	FACTOR(1..5)	TSQUARE	PROB

Latent Roots (Eigenvalues)

1	2	3	4	5
6.5826816	3.8933646	2.2185438	1.3821641	1.0557783

6	7	8	9	10
0.6036351	0.4797428	0.3526021	0.1493426	0.1068453

11	12	13	14	15
0.0801407	0.0481192	0.0251069	0.0096874	0.0058329

16	17
0.0036643	0.0027483

Component loadings

	1	2	3	4	5
D1234678	0.6527316	-0.6206002	0.3360551	0.0976383	0.0793078
F1234678	0.3829971	-0.2613548	-0.1253363	-0.8366590	-0.2222827
F1234789	0.3324461	-0.0722620	0.7112302	-0.0996611	0.4394288
D123478	0.8952316	-0.2662874	-0.0001462	0.0228224	-0.0497169
F123478	0.6181440	0.6202408	-0.2472404	0.0583397	0.3697176
D123678	0.8254197	-0.4773144	0.1197493	0.0613068	0.0156384
F123678	0.6649513	0.1212350	-0.2791833	-0.6640516	0.0782713
D123789	0.8014714	-0.4656529	0.1375921	0.0896673	-0.1558611
F123789	0.1153678	0.6303463	0.6215269	-0.1815136	0.2290797
D12378	0.9160813	-0.0037273	-0.3120601	0.1398184	0.0257936
F12378	0.0912784	0.5741820	0.4849921	0.0675804	-0.5842807
F234678	0.7298377	0.4149518	-0.0562353	0.1229078	-0.2000515
F23478	0.6430878	0.5140900	-0.4551955	0.1454234	0.2622059
D2378	0.8189469	0.2992664	0.0944461	0.1289132	-0.3516021
F2378	0.4718198	0.8275377	0.0157883	0.1030306	-0.0213735
OCDD	0.4994594	-0.6523104	0.2625173	0.2097123	0.0822585

OCDF	0.0148589	0.3953832	0.6358978	-0.2036700	0.0548464

Variance Explained by Components

1	2	3	4	5
6.5826816	3.8933646	2.2185438	1.3821641	1.0557783

Percent of Total Variance Explained

1	2	3	4	5
38.7216566	22.9021449	13.0502574	8.1303768	6.2104603

Rotated Loading Matrix (VARIMAX, Gamma = 1.0000)

	1	2	3	4	5
D1234678	0.9559822	-0.0611895	0.1064884	0.0699266	-0.0779973
F1234678	0.2140860	-0.0811137	-0.0399112	0.9620368	0.0242970
F1234789	0.4526950	-0.0125521	0.7723970	-0.0215069	-0.1499020
D123478	0.8016616	0.3832386	-0.0579735	0.2694028	0.0993447
F123478	0.0011321	0.9619862	0.1913169	0.0635532	-0.0443087
D123678	0.9229424	0.1917277	-0.0227028	0.1957829	-0.0078187
F123678	0.1738836	0.4957480	0.0644676	0.8350452	-0.0665910
D123789	0.9102760	0.1347010	-0.0824537	0.1873211	0.1477127
F123789	-0.1738324	0.2369990	0.8647000	-0.0123629	0.2193660
D12378	0.5950431	0.7168894	-0.2162915	0.1963821	0.0588226
F12378	-0.1380702	0.0617187	0.3414493	-0.0787244	0.8795041
F234678	0.2737414	0.6875894	0.0348693	0.1116461	0.4491583
F23478	0.0458522	0.9808316	-0.0767577	0.0588829	-0.0382255
D2378	0.4507736	0.5736509	0.0593332	0.1370242	0.5956752
F2378	-0.1465836	0.7932059	0.2953295	-0.0226759	0.4246856
OCDD	0.8712478	-0.1253260	-0.0015554	-0.0608415	-0.1270672
OCDF	-0.1014743	-0.0234069	0.7236510	0.0240430	0.2651614

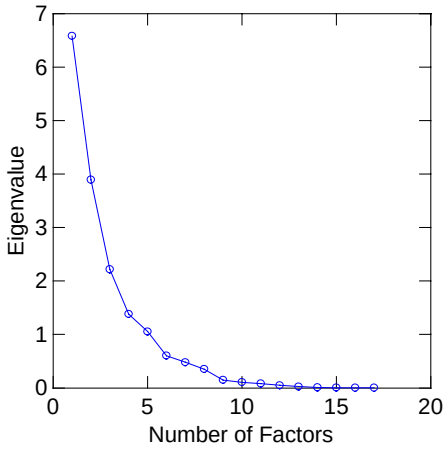
"Variance" Explained by Rotated Components

1	2	3	4	5
4.9924382	4.3666639	2.1935594	1.8626224	1.7172484

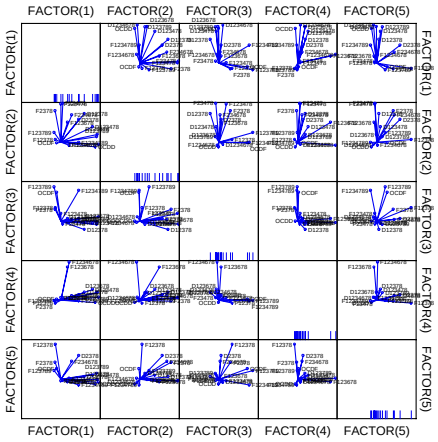
Percent of Total Variance Explained

1	2	3	4	5
29.3672838	25.6862581	12.9032904	10.9566022	10.1014615

Scree Plot



Factor Loadings Plot



Mann Whitney U test on owl body burdens

```
SYSTAT Rectangular file C:\WINDOWS\Desktop\rma report\BURDEN.SYD,
created Thu Sep 14, 2000 at 07:38:30, contains variables:

    SAMP$     SITE$    BURDEN

Categorical values encountered during processing are:
SITE$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 8 cases
Dependent variable is BURDEN
 Grouping variable is SITE$
```

```
    Group       Count   Rank Sum
  O                3      18.000
  R                5      18.000
Mann-Whitney U test statistic =       12.000
Probability is        0.180
Chi-square approximation =        1.800 with 1 df
```

Mann Whitney U for owls by Age (unknowns not considered)

```
The following results are for:
   SITE$        = O
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF") AND (AGE$<> "U")

Categorical values encountered during processing are:
AGE$ (2 levels)
   A, J

Kruskal-Wallis One-Way Analysis of Variance for 13 cases
Dependent variable is FULL
 Grouping variable is AGE$

    Group       Count   Rank Sum
  A                4  43.0000000
  J                9  48.0000000
Mann-Whitney U test statistic =   33.0000000
Probability is    0.0206376
Chi-square approximation =    5.3571429 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 13 cases
Dependent variable is QUANT
 Grouping variable is AGE$

    Group       Count   Rank Sum
  A                4  43.0000000
  J                9  48.0000000
Mann-Whitney U test statistic =   33.0000000
Probability is    0.0206376
Chi-square approximation =    5.3571429 with 1 df

The following results are for:
   SITE$        = R
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF") AND (AGE$<> "U")

Categorical values encountered during processing are:
AGE$ (2 levels)
   A, J

Kruskal-Wallis One-Way Analysis of Variance for 10 cases
Dependent variable is FULL
 Grouping variable is AGE$

    Group       Count   Rank Sum
  A                5  26.0000000
  J                5  29.0000000
Mann-Whitney U test statistic =   11.0000000
Probability is    0.7540225
Chi-square approximation =    0.0981818 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 10 cases
Dependent variable is QUANT
 Grouping variable is AGE$
```

```
    Group       Count   Rank Sum
  A                5  30.0000000
  J                5  25.0000000
Mann-Whitney U test statistic =   15.0000000
Probability is    0.6015081
Chi-square approximation =    0.2727273 with 1 df
```

Mann Whitney U for owls by Age (unknowns not considered)

```
The following results are for:
   AGE$         = J
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Categorical values encountered during processing are:
SITE$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is FULL
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                9  67.0000000
  R                5  38.0000000
Mann-Whitney U test statistic =   22.0000000
Probability is    0.9468471
Chi-square approximation =    0.0044444 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is QUANT
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                9  77.0000000
  R                5  28.0000000
Mann-Whitney U test statistic =   32.0000000
Probability is    0.2052745
Chi-square approximation =    1.6044444 with 1 df

The following results are for:
   AGE$         = A
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Categorical values encountered during processing are:
SITE$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 12 cases
Dependent variable is FULL
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                7  57.0000000
  R                5  21.0000000
Mann-Whitney U test statistic =   29.0000000
Probability is    0.0618185
Chi-square approximation =    3.4879121 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 12 cases
Dependent variable is QUANT
```

```
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                 7  57.0000000
  R                 5  21.0000000
Mann-Whitney U test statistic =   29.0000000
Probability is    0.0618185
Chi-square approximation =    3.4879121 with 1 df
```

KS tests on owl data (unknowns not considered)

```
SYSTAT Rectangular file C:\WINDOWS\Desktop\rma report\absolute data\Owlsumm4.syd,
created Mon Sep 11, 2000 at 13:59:58, contains variables:

 SAMP$       SITE$       AGE$          MEASURE$       FULL        PARTIAL
 QUANT       LN_FULL     LN_QUANT      FULL_15        QUAN_15     LN_FULL_15
 LN_QUAN_15

Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL              26.000       0.257          0.000
   QUANT             26.000       0.262          0.000
   LN_FULL           26.000       0.081          1.000
   LN_QUANT          26.000       0.115          0.499


The following results are for:
   SITE$        = O
   AGE$         = J
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL              9.000       0.176          0.697
   QUANT             9.000       0.198          0.444
   LN_FULL           9.000       0.163          0.875
   LN_QUANT          9.000       0.201          0.410

The following results are for:
   SITE$        = O
   AGE$         = A
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL              4.000       0.263          0.635
   QUANT             4.000       0.262          0.644
   LN_FULL           4.000       0.237          0.965
   LN_QUANT          4.000       0.236          0.979

The following results are for:
   SITE$        = O
   AGE$         = U
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")
```

```
Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL               3.000       0.304          0.576
   QUANT              3.000       0.302          0.590
   LN_FULL            3.000       0.201          1.000
   LN_QUANT           3.000       0.190          1.000

The following results are for:
   SITE$        = R
   AGE$         = A
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL               5.000       0.401          0.009
   QUANT              5.000       0.386          0.014
   LN_FULL            5.000       0.302          0.165
   LN_QUANT           5.000       0.203          1.000

The following results are for:
   SITE$        = R
   AGE$         = J
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL               5.000       0.207          1.000
   QUANT              5.000       0.193          1.000
   LN_FULL            5.000       0.234          0.681
   LN_QUANT           5.000       0.252          0.487
```

KS tests on owl data (unknowns not considered)

```
The following results are for:
   AGE$         = J
   SITE$        = O
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL            9.0000000   0.1760528      0.6971421
   QUANT           9.0000000   0.1979361      0.4440426
   LN_FULL         9.0000000   0.1632342      0.8752114
   LN_QUANT        9.0000000   0.2014190      0.4102769

The following results are for:
   AGE$         = A
   SITE$        = O
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL            7.0000000   0.2697553      0.1384661
```

```
   QUANT          7.0000000   0.2684131      0.1436803
   LN_FULL        7.0000000   0.1304922      1.0000000
   LN_QUANT       7.0000000   0.1264786      1.0000000

The following results are for:
   AGE$         = A
   SITE$        = R
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL           5.0000000   0.4008231      0.0085123
   QUANT          5.0000000   0.3857994      0.0143068
   LN_FULL        5.0000000   0.3020146      0.1648025
   LN_QUANT       5.0000000   0.2034991      1.0000000

The following results are for:
   AGE$         = J
   SITE$        = R
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)
   FULL           5.0000000   0.2071441      1.0000000
   QUANT          5.0000000   0.1929674      1.0000000
   LN_FULL        5.0000000   0.2340969      0.6811454
   LN_QUANT       5.0000000   0.2524854      0.4874900
```

Mann-Whitney U test for Owls (unknowns not considered)

```
The following results are for:
   AGE$         = J
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Categorical values encountered during processing are:
SITE$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is FULL
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O               9  67.0000000
  R               5  38.0000000
Mann-Whitney U test statistic =   22.0000000
Probability is    0.9468471
Chi-square approximation =    0.0044444 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is QUANT
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O               9  77.0000000
  R               5  28.0000000
Mann-Whitney U test statistic =   32.0000000
Probability is    0.2052745
```

```
Chi-square approximation =    1.6044444 with 1 df

The following results are for:
   AGE$         = A
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Categorical values encountered during processing are:
SITE$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 9 cases
Dependent variable is FULL
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                4  28.0000000
  R                5  17.0000000
Mann-Whitney U test statistic =   18.0000000
Probability is    0.0500435
Chi-square approximation =    3.8400000 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 9 cases
Dependent variable is QUANT
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                4  28.0000000
  R                5  17.0000000
Mann-Whitney U test statistic =   18.0000000
Probability is    0.0500435
Chi-square approximation =    3.8400000 with 1 df
```

Mann-Whitney U test for owls (Unknowns as adults)

```
 The following results are for:
   AGE$         = J
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Categorical values encountered during processing are:
SITE$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is FULL
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                9  67.0000000
  R                5  38.0000000
Mann-Whitney U test statistic =   22.0000000
Probability is    0.9468471
Chi-square approximation =    0.0044444 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is QUANT
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                9  77.0000000
  R                5  28.0000000
Mann-Whitney U test statistic =   32.0000000
```

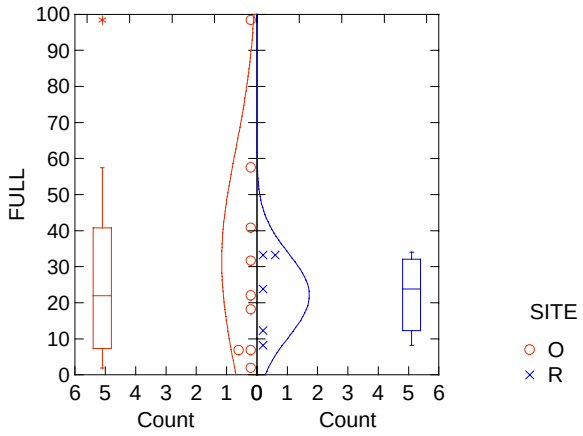
```
Probability is    0.2052745
Chi-square approximation =    1.6044444 with 1 df

The following results are for:
   AGE$         = A
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Categorical values encountered during processing are:
SITE$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 12 cases
Dependent variable is FULL
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                7  57.0000000
  R                5  21.0000000
Mann-Whitney U test statistic =   29.0000000
Probability is    0.0618185
Chi-square approximation =    3.4879121 with 1 df

Kruskal-Wallis One-Way Analysis of Variance for 12 cases
Dependent variable is QUANT
 Grouping variable is SITE$

    Group       Count   Rank Sum
  O                7  57.0000000
  R                5  21.0000000
Mann-Whitney U test statistic =   29.0000000
Probability is    0.0618185
Chi-square approximation =    3.4879121 with 1 df
```

t-test for owls (unknowns not considered)

```
The following results are for:
   AGE$         = J
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Two-sample t test on FULL grouped by SITE$
```

	Mean	SD
	31.4777778	30.8936797
	22.0800000	11.5514934

```
     Separate Variance t =    0.8157068 df =   11.1    Prob =    0.4317873
     Difference in Means =    9.3977778   95.00% CI = -1.593E+01 to  3.472E+01

       Pooled Variance t =    0.6457595 df =   12      Prob =    0.5305900
     Difference in Means =    9.3977778   95.00% CI = -2.231E+01 to  4.111E+01
```

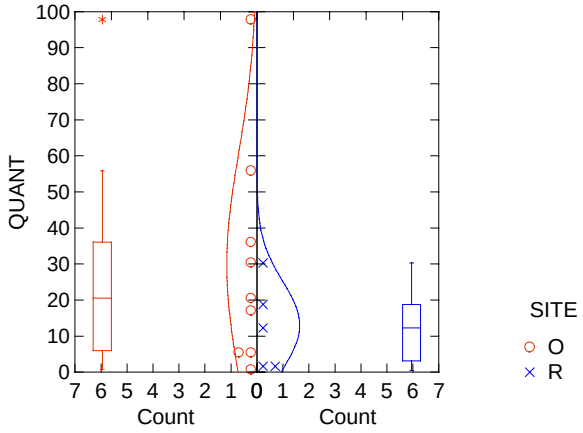


Two-sample t test on QUANT grouped by SITE$

	Mean	SD
	29.8666667	30.9364267
	13.0000000	12.1210561

Separate Variance t = 1.4477731 df = 11.3 Prob = 0.1748377
Difference in Means = 16.8666667 95.00% CI = -8.6906860 to 4.242E+01

Pooled Variance t = 1.1536880 df = 12 Prob = 0.2710891
Difference in Means = 16.8666667 95.00% CI = -1.499E+01 to 4.872E+01

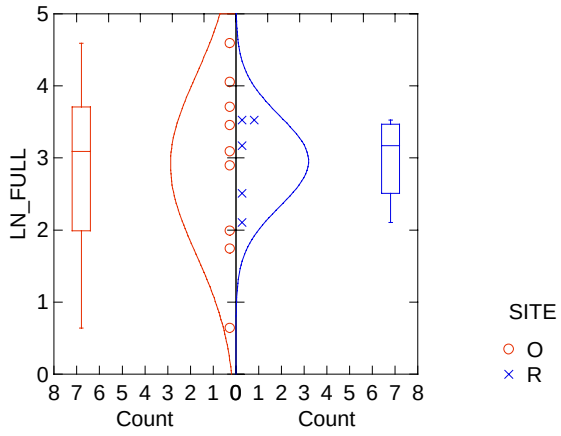


Two-sample t test on LN_FULL grouped by SITE$

	Mean	SD
	2.9066460	1.2475601
	2.9557271	0.6242881

Separate Variance t = -0.0979897 df = 12.0 Prob = 0.9235619
Difference in Means = -0.0490811 95.00% CI = -1.1406850 to 1.0425227

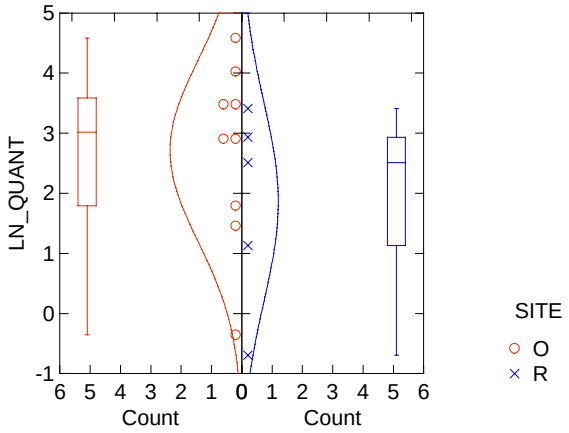
```
  Pooled Variance t =   -0.0814377 df =   12      Prob =    0.9364364
Difference in Means =   -0.0490811   95.00% CI = -1.3622153 to  1.2640530
```



Two-sample t test on LN_QUANT grouped by SITE$

	Mean	SD
	2.7067141	1.5175630
	1.8585718	1.6606183

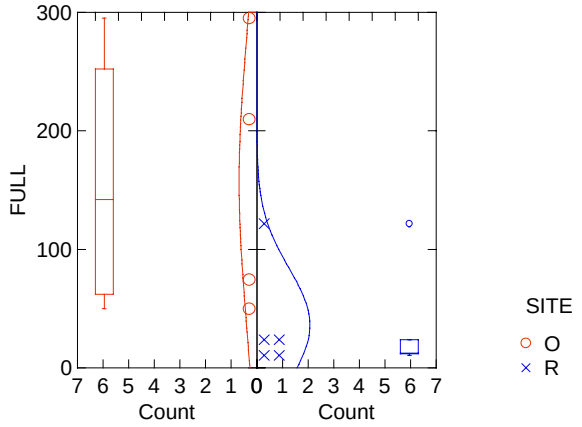
```
Separate Variance t =    0.9438853 df =    7.7    Prob =    0.3737551
Difference in Means =    0.8481424   95.00% CI = -1.2361454 to  2.9324302

  Pooled Variance t =    0.9705661 df =   12      Prob =    0.3509214
Difference in Means =    0.8481424   95.00% CI = -1.0558428 to  2.7521276
```




```
The following results are for:
   AGE$         = A
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Two-sample t test on FULL grouped by SITE$
```

	Mean	SD
	157.2000000	115.7142169
	36.0000000	48.1450413

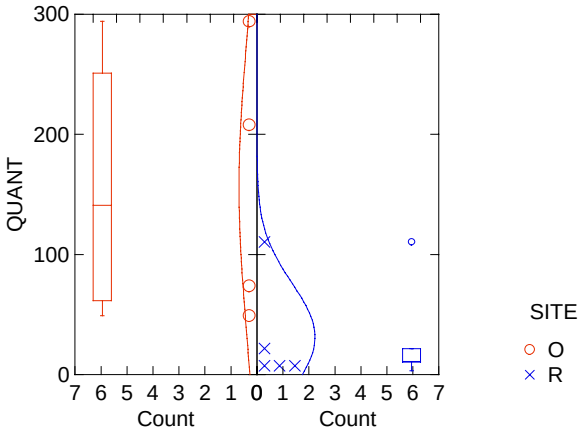
```
Separate Variance t =    1.9632753 df =    3.8    Prob =    0.1241740
Difference in Means =  121.2000000   95.00% CI = -5.318E+01 to  2.956E+02

  Pooled Variance t =    2.1498157 df =    7      Prob =    0.0686323
Difference in Means =  121.2000000   95.00% CI = -1.211E+01 to  2.545E+02
```



Two-sample t test on QUANT grouped by SITE$

	Mean	SD
	156.2000000	115.3185443
	31.3800000	44.6592320

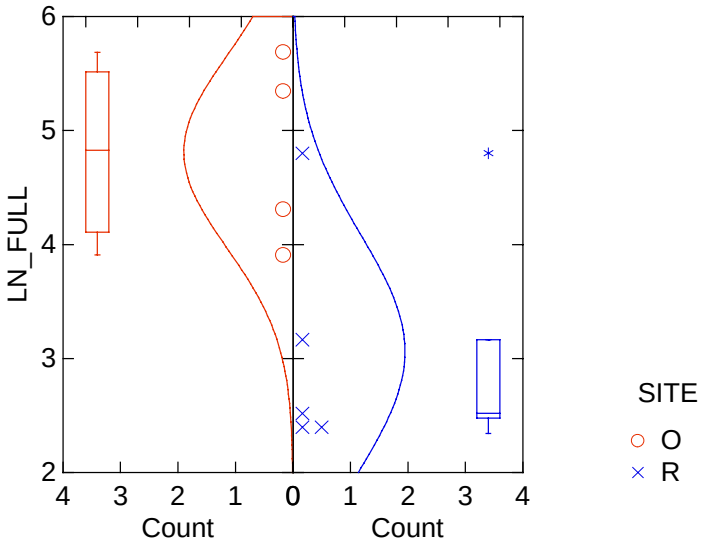
```
Separate Variance t =    2.0455477 df =    3.7    Prob =    0.1154467
Difference in Means =  124.8200000   95.00% CI = -4.969E+01 to  2.993E+02

  Pooled Variance t =    2.2499980 df =    7      Prob =    0.0591983
Difference in Means =  124.8200000   95.00% CI = -6.3589622 to  2.560E+02
```



Two-sample t test on LN_FULL grouped by SITE$

	Mean	SD
	4.8121603	0.8409462
	3.0604505	1.0236714

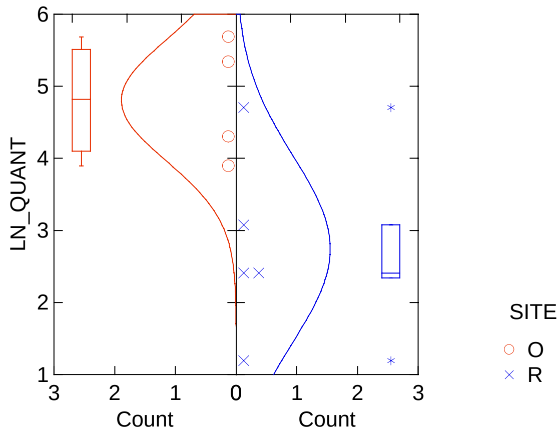
```
Separate Variance t =    2.8180962 df =    7.0    Prob =    0.0259360
Difference in Means =    1.7517098   95.00% CI =  0.2808509 to  3.2225686

  Pooled Variance t =    2.7496707 df =    7      Prob =    0.0285175
Difference in Means =    1.7517098   95.00% CI =  0.2452983 to  3.2581212
```



Two-sample t test on LN_QUANT grouped by SITE$

	Mean	SD
	4.8041819	0.8439872
	2.7448192	1.2875589

```
Separate Variance t =    2.8847024 df =    6.8    Prob =    0.0241518
Difference in Means =    2.0593628   95.00% CI =  0.3624853 to  3.7562402

  Pooled Variance t =    2.7429697 df =    7      Prob =    0.0287945
Difference in Means =    2.0593628   95.00% CI =  0.2840537 to  3.8346719
```



t-test for owls unknowns as adults

SYSTAT Rectangular file C:\WINDOWS\Desktop\rma report\absolute data\Owlsumm4.syd,
created Mon Sep 11, 2000 at 13:59:58, contains variables:

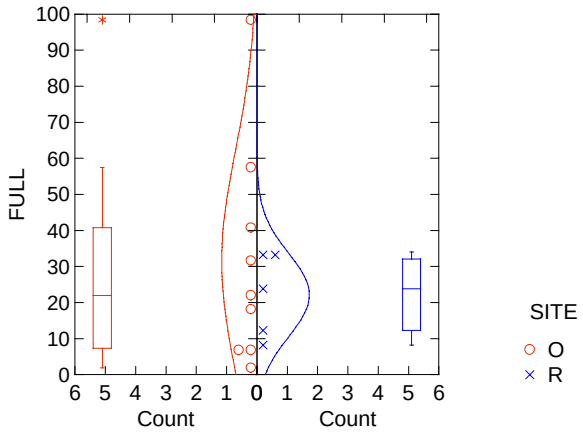
S. S AG MEASURE(PARTIAL
Q LN_ LN_QUA FULL_1(QU LN_FULL_15
LN_QUA

The following results are for:
AGE$ = J
Data for the following results were selected according to:
(MEASURE$= "PCDD/PCDF")

Two-sample t test on FULL grouped by SITE$

	Mean	SD
	31.4777778	30.8936797
	22.0800000	11.5514934

```
     Separate Variance t =    0.8157068 df =   11.1    Prob =    0.4317873
     Difference in Means =    9.3977778   95.00% CI = -1.593E+01 to  3.472E+01

       Pooled Variance t =    0.6457595 df =   12      Prob =    0.5305900
     Difference in Means =    9.3977778   95.00% CI = -2.231E+01 to  4.111E+01
```

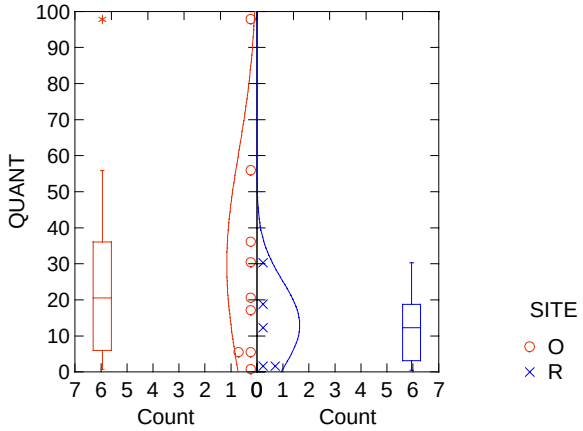


Two-sample t test on QUANT grouped by SITE$

	Mean	SD
	29.8666667	30.9364267
	13.0000000	12.1210561

Separate Variance t = 1.4477731 df = 11.3 Prob = 0.1748377
Difference in Means = 16.8666667 95.00% CI = -8.6906860 to 4.242E+01

Pooled Variance t = 1.1536880 df = 12 Prob = 0.2710891
Difference in Means = 16.8666667 95.00% CI = -1.499E+01 to 4.872E+01

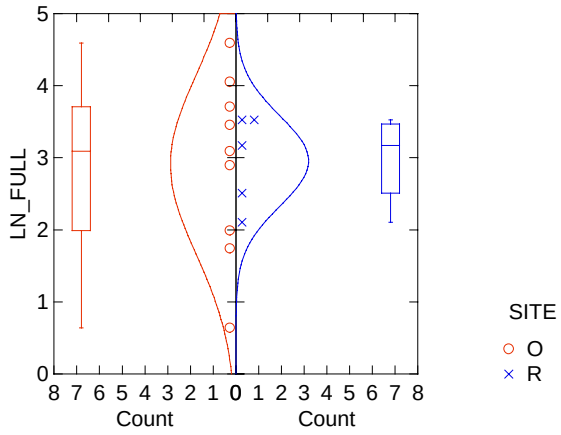


Two-sample t test on LN_FULL grouped by SITE$

	Mean	SD
	2.9066460	1.2475601
	2.9557271	0.6242881

Separate Variance t = -0.0979897 df = 12.0 Prob = 0.9235619
Difference in Means = -0.0490811 95.00% CI = -1.1406850 to 1.0425227

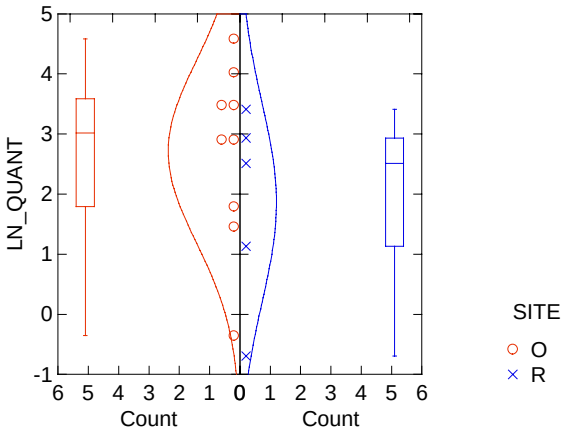
```
  Pooled Variance t =   -0.0814377 df =   12      Prob =    0.9364364
Difference in Means =   -0.0490811   95.00% CI = -1.3622153 to  1.2640530
```



Two-sample t test on LN_QUANT grouped by SITE$

	Mean	SD
	2.7067141	1.5175630
	1.8585718	1.6606183

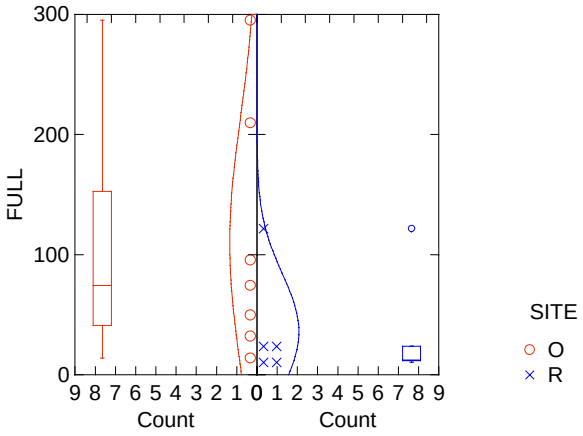
```
Separate Variance t =    0.9438853 df =    7.7    Prob =    0.3737551
Difference in Means =    0.8481424   95.00% CI = -1.2361454 to  2.9324302

  Pooled Variance t =    0.9705661 df =   12      Prob =    0.3509214
Difference in Means =    0.8481424   95.00% CI = -1.0558428 to  2.7521276
```




```
The following results are for:
   AGE$         = A
Data for the following results were selected according to:
      (MEASURE$= "PCDD/PCDF")

Two-sample t test on FULL grouped by SITE$
```

	Mean	SD
	110.0714286	103.7433325
	36.0000000	48.1450413

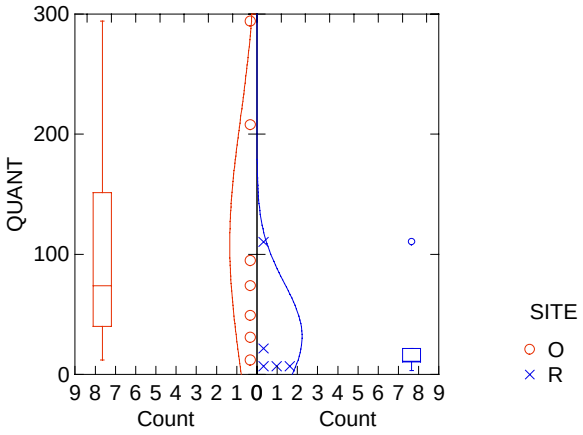
```
Separate Variance t =    1.6558262 df =    8.9    Prob =    0.1323512
Difference in Means =   74.0714286   95.00% CI = -2.722E+01 to  1.754E+02

  Pooled Variance t =    1.4720589 df =   10      Prob =    0.1717644
Difference in Means =   74.0714286   95.00% CI = -3.804E+01 to  1.862E+02
```



Two-sample t test on QUANT grouped by SITE$

	Mean	SD
	108.9142857	103.7081551
	31.3800000	44.6592320

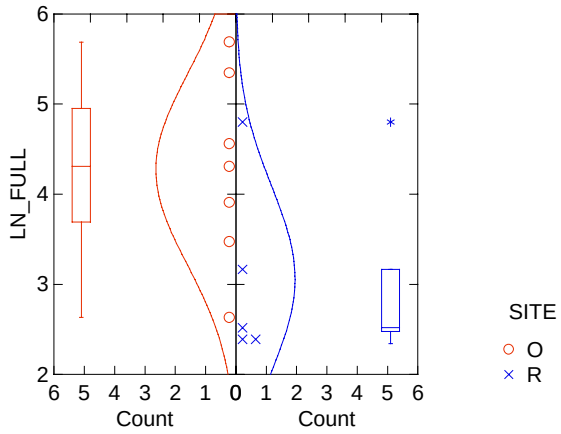
```
Separate Variance t =    1.7624285 df =    8.6    Prob =    0.1132068
Difference in Means =   77.5342857   95.00% CI = -2.261E+01 to  1.777E+02

  Pooled Variance t =    1.5550273 df =   10      Prob =    0.1509924
Difference in Means =   77.5342857   95.00% CI = -3.356E+01 to  1.886E+02
```



Two-sample t test on LN_FULL grouped by SITE$

	Mean	SD
	4.2732385	1.0568597
	3.0604505	1.0236714

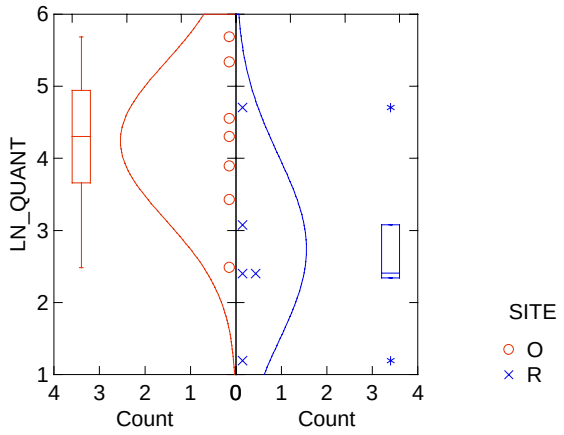
```
Separate Variance t =    1.9961180 df =    9.0    Prob =    0.0772085
Difference in Means =    1.2127879   95.00% CI = -0.1627956 to  2.5883715

  Pooled Variance t =    1.9844857 df =   10      Prob =    0.0753086
Difference in Means =    1.2127879   95.00% CI = -0.1489049 to  2.5744807
```



Two-sample t test on LN_QUANT grouped by SITE$

	Mean	SD
	4.2401312	1.0990779
	2.7448192	1.2875589

```
Separate Variance t =    2.1060126 df =    7.8    Prob =    0.0690298
Difference in Means =    1.4953121   95.00% CI = -0.1481028 to  3.1387270

  Pooled Variance t =    2.1676798 df =   10      Prob =    0.0553866
Difference in Means =    1.4953121   95.00% CI = -0.0417060 to  3.0323301
```



Kolmogarov-Smirnov test for owl TCDD-EQ data

```
SYSTAT Rectangular file C:\WINDOWS\Desktop\rma report\owl_bio.SYD,
created Wed Sep 13, 2000 at 16:21:42, contains variables:

 SAMPLENUMBE$ SAMPLEORIGI$ AGECLASS$   TCDDEQMAX   TCDDEQFULL    TCDDEQPART
 LN_FULL

The following results are for:
   AGECLASS$    = A
   SAMPLEORIGI$ = R

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQMAX          5.000       0.429          0.003
   LN_FULL            5.000       0.218          0.880

The following results are for:
   AGECLASS$    = A
   SAMPLEORIGI$ = O

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQMAX          4.000       0.244          0.863
   LN_FULL            4.000       0.230          1.000

The following results are for:
   AGECLASS$    = J
   SAMPLEORIGI$ = R

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQMAX          5.000       0.384          0.015
   LN_FULL            5.000       0.256          0.454

The following results are for:
```

```
   AGECLASS$    = J
   SAMPLEORIGI$ = O

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQMAX          9.000       0.418          0.000
   LN_FULL            9.000       0.178          0.671

The following results are for:
   AGECLASS$    = U
   SAMPLEORIGI$ = O

Kolmogorov-Smirnov One Sample Test using Normal(0.00,1.00) distribution

  Variable       N-of-Cases      MaxDif  Lilliefors Probability (2-tail)

   TCDDEQMAX          3.000       0.196          1.000
   LN_FULL            3.000       0.305          0.567
```

Mann Whitney U test for differences in owl ages

```
The following results are for:
   SAMPLEORIGI$ = R
Data for the following results were selected according to:
      (AGECLASS$<> "U")

Categorical values encountered during processing are:
AGECLASS$ (2 levels)
   A, J

Kruskal-Wallis One-Way Analysis of Variance for 10 cases
Dependent variable is TCDDEQMAX
 Grouping variable is AGECLASS$

    Group       Count   Rank Sum

  A                5      32.000
  J                5      23.000
Mann-Whitney U test statistic =       17.000
Probability is        0.343
Chi-square approximation =        0.900 with 1 df

The following results are for:
   SAMPLEORIGI$ = O
Data for the following results were selected according to:
      (AGECLASS$<> "U")

Categorical values encountered during processing are:
AGECLASS$ (2 levels)
   A, J

Kruskal-Wallis One-Way Analysis of Variance for 13 cases
Dependent variable is TCDDEQMAX
 Grouping variable is AGECLASS$

    Group       Count   Rank Sum

  A                4      44.000
  J                9      47.000
Mann-Whitney U test statistic =       34.000
Probability is        0.013
```

```
Chi-square approximation =        6.129 with 1 df
```

Mann whitney U test for differences by site in owls (unknowns not included)

```
The following results are for:
   AGECLASS$    = A
Data for the following results were selected according to:
      (AGECLASS$<> "U")

Categorical values encountered during processing are:
SAMPLEORIGI$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 9 cases
Dependent variable is TCDDEQMAX
 Grouping variable is SAMPLEORIGI$

    Group       Count   Rank Sum

  O                4     27.0000
  R                5     18.0000
Mann-Whitney U test statistic =      17.0000
Probability is       0.0864
Chi-square approximation =       2.9400 with 1 df

The following results are for:
   AGECLASS$    = J
Data for the following results were selected according to:
      (AGECLASS$<> "U")

Categorical values encountered during processing are:
SAMPLEORIGI$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is TCDDEQMAX
 Grouping variable is SAMPLEORIGI$

    Group       Count   Rank Sum

  O                9     72.5000
  R                5     32.5000
Mann-Whitney U test statistic =      27.5000
Probability is       0.5002
Chi-square approximation =       0.4544 with 1 df
```

Mann whitney U test for differences by site in owls (unknowns as adults)

```
The following results are for:
   AGECLASS$    = A

Categorical values encountered during processing are:
SAMPLEORIGI$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 12 cases
Dependent variable is TCDDEQMAX
 Grouping variable is SAMPLEORIGI$

    Group       Count   Rank Sum
  O                7     51.5000
  R                5     26.5000
```

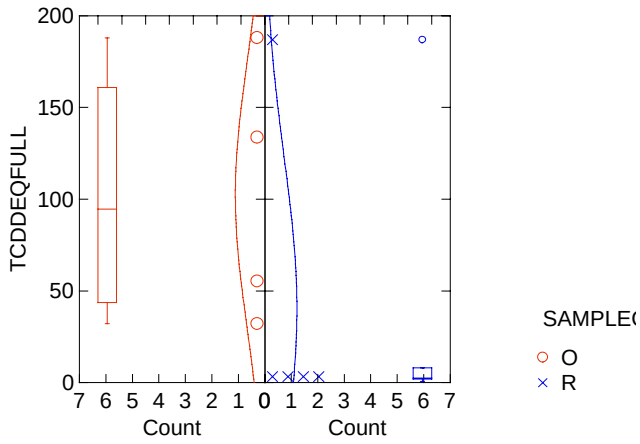
```
Mann-Whitney U test statistic =      23.5000
Probability is       0.3290
Chi-square approximation =       0.9528 with 1 df

The following results are for:
   AGECLASS$    = J

Categorical values encountered during processing are:
SAMPLEORIGI$ (2 levels)
   O, R

Kruskal-Wallis One-Way Analysis of Variance for 14 cases
Dependent variable is TCDDEQMAX
 Grouping variable is SAMPLEORIGI$

    Group       Count   Rank Sum
  O                9     72.5000
  R                5     32.5000
Mann-Whitney U test statistic =      27.5000
Probability is       0.5002
Chi-square approximation =       0.4544 with 1 df
```

t-tests for diff in owl TCDD-EQ (unknowns not used)

```
SYSTAT Rectangular file C:\WINDOWS\Desktop\rma report\owl_bio.SYD,
created Fri Sep 15, 2000 at 06:58:08, contains variables:

       SAMPLEM       SAMPLEOR          AGE(          TC          TCDDE          TCDDEQ
            LM            FUL

The following results are for:
   AGECLASS$    = A

Two-sample t test on TCDDEQFULL grouped by SAMPLEORIGI$
```

	Mean	SD
	102.3125	71.7869
	40.0000	82.2245

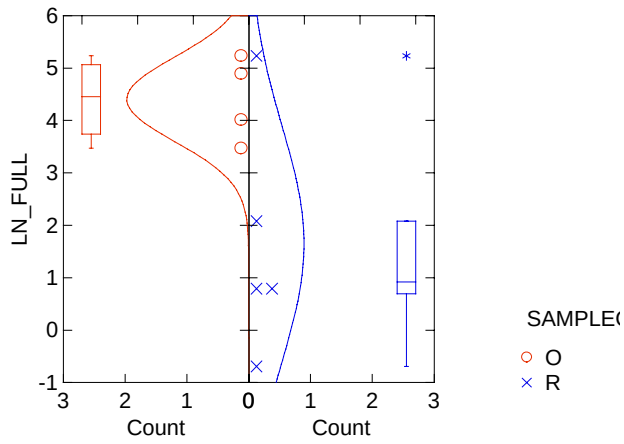
```
     Separate Variance t =       1.2126 df =    6.9    Prob =       0.2651
     Difference in Means =      62.3125   95.00% CI =   -59.5510 to   184.1760

       Pooled Variance t =       1.1921 df =    7      Prob =       0.2721
     Difference in Means =      62.3125   95.00% CI =   -61.2914 to   185.9164
```



Two-sample t test on LN_FULL grouped by SAMPLEORIGI$

	Mean	SD
	4.4040	0.8083
	1.6454	2.2334

```
     Separate Variance t =       2.5603 df =    5.2    Prob =       0.0486
     Difference in Means =       2.7587   95.00% CI =     0.0252 to     5.4922

       Pooled Variance t =       2.3243 df =    7      Prob =       0.0531
     Difference in Means =       2.7587   95.00% CI =    -0.0479 to     5.5652
```

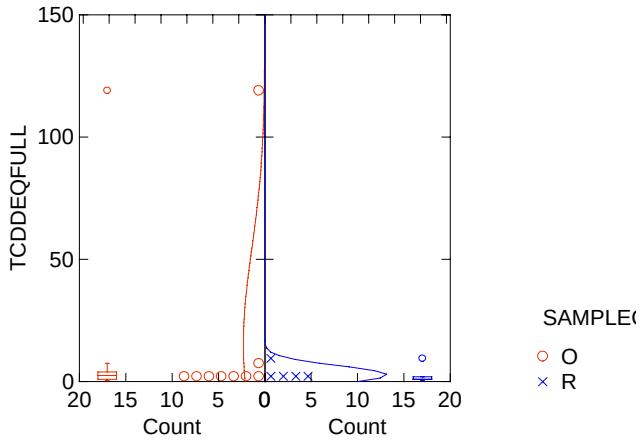


The following results are for:
AGECLASS$ = J

Two-sample t test on TCDDEQFULL grouped by SAMPLEORIGI$

	Mean	SD
	15.5000	38.8732
	2.8000	3.7848

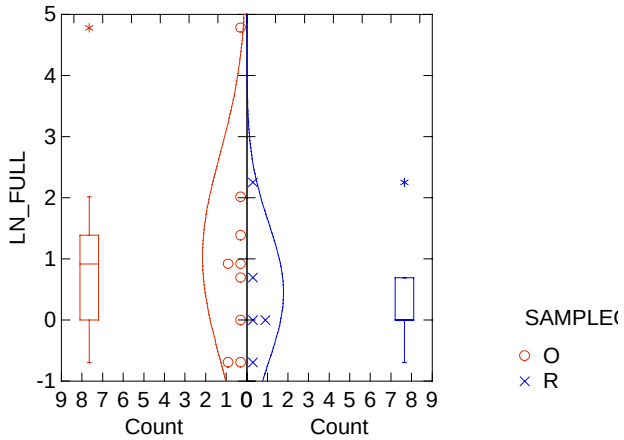
```
Separate Variance t =       0.9719 df =    8.3    Prob =       0.3587
Difference in Means =      12.7000   95.00% CI =   -17.2637 to    42.6637

  Pooled Variance t =       0.7157 df =   12      Prob =       0.4879
Difference in Means =      12.7000   95.00% CI =   -25.9642 to    51.3642
```



Two-sample t test on LN_FULL grouped by SAMPLEORIGI$

	Mean	SD
	1.0355	1.6693
	0.4503	1.1198

```
Separate Variance t =       0.7818 df =   11.3    Prob =       0.4503
Difference in Means =       0.5853   95.00% CI =    -1.0564 to     2.2270

  Pooled Variance t =       0.6956 df =   12      Prob =       0.4999
Difference in Means =       0.5853   95.00% CI =    -1.2480 to     2.4185
```



The following results are for:
AGECLASS$ = U

Two-sample t test on TCDDEQFULL grouped by SAMPLEORIGI$

	Mean	SD
	2.8333	2.2546
	.	.

Insufficient data for test.

Two-sample t test on LN_FULL grouped by SAMPLEORIGI$

Group	N	Mean	SD	
O			0.	1.
	3	6716	2092	
	0		.	.

Insufficient data for test.

SYSTAT Rectangular file C:\WINDOWS\Desktop\rma report\owl_bio.SYD,
created Thu Sep 14, 2000 at 17:27:12, contains variables:

SAMPLEN SAMPLEO AGECLAS TCDDE TCDDE TCDDE
LN FU

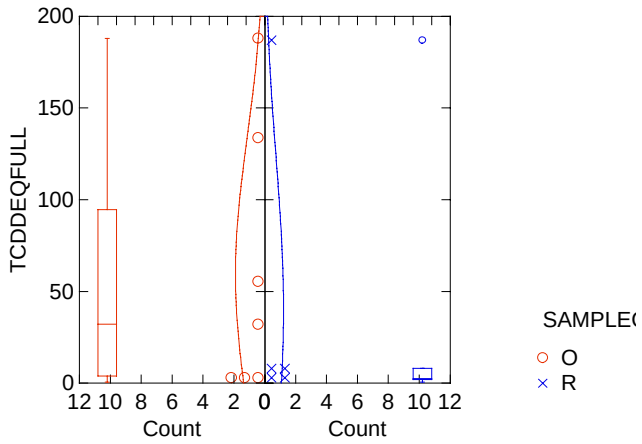
The following results are for:
AGECLASS$ = A

Two-sample t test on TCDDEQFULL grouped by SAMPLEORIGI$

	Mean	SD
	59.6786	73.5244
	40.0000	82.2245

Separate Variance t = 0.4269 df = 8.1 Prob = 0.6805
Difference in Means = 19.6786 95.00% CI = -86.3581 to 125.7153

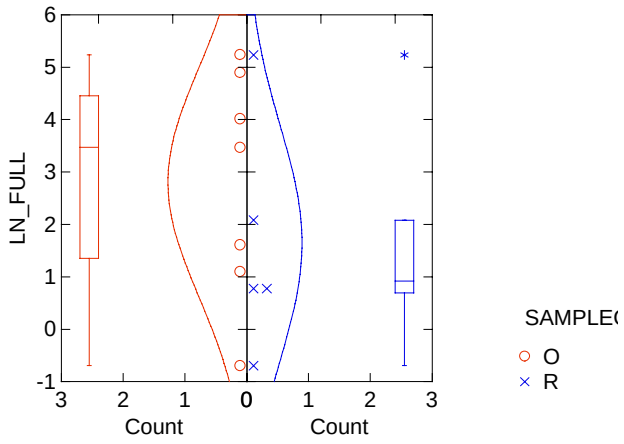
Pooled Variance t = 0.4358 df = 10 Prob = 0.6723
Difference in Means = 19.6786 95.00% CI = -80.9402 to 120.2973



Two-sample t test on LN_FULL grouped by SAMPLEORIGI$

	Mean	SD
	2.8044	2.1896
	1.6454	2.2334

```
Separate Variance t =       0.8936 df =    8.7    Prob =       0.3957
Difference in Means =       1.1591   95.00% CI =    -1.7930 to     4.1112

  Pooled Variance t =       0.8968 df =   10      Prob =       0.3909
Difference in Means =       1.1591   95.00% CI =    -1.7206 to     4.0388
```

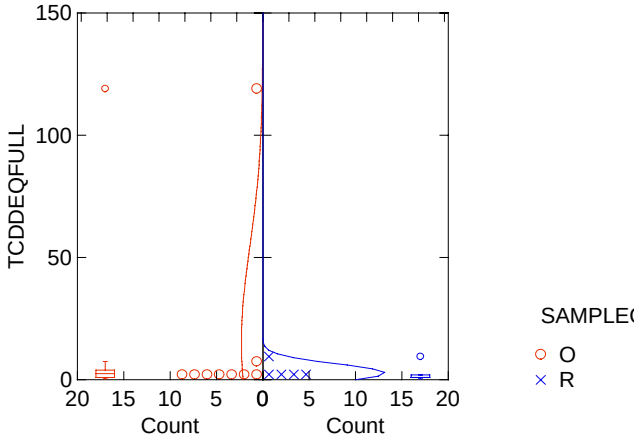


The following results are for:
AGECLASS$ = J

Two-sample t test on TCDDEQFULL grouped by SAMPLEORIGI$

	Mean	SD
	15.5000	38.8732
	2.8000	3.7848

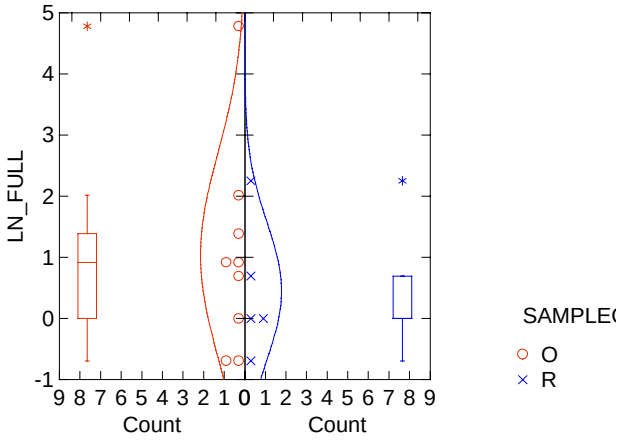
```
Separate Variance t =       0.9719 df =    8.3    Prob =       0.3587
Difference in Means =      12.7000   95.00% CI =   -17.2637 to    42.6637

  Pooled Variance t =       0.7157 df =   12      Prob =       0.4879
Difference in Means =      12.7000   95.00% CI =   -25.9642 to    51.3642
```



Two-sample t test on LN_FULL grouped by SAMPLEORIGI$

Group	N	Mean	SD
O	9	1.0355	1.6693
R	5	0.4503	1.1198

```
Separate Variance t =       0.7818 df =   11.3    Prob =       0.4503
Difference in Means =       0.5853   95.00% CI =    -1.0564 to     2.2270

  Pooled Variance t =       0.6956 df =   12      Prob =       0.4999
Difference in Means =       0.5853   95.00% CI =    -1.2480 to     2.4185
```



PCA ANALYSIS FOR OWLS

Latent Roots (Eigenvalues)

1	2	3	4	5
9.209	2.642	1.974	1.183	1.037
6	**7**	**8**	**9**	**10**
0.432	0.206	0.103	0.076	0.058
11	**12**	**13**	**14**	**15**
0.043	0.011	0.009	0.006	0.006
16	**17**			
0.005	0.000			

Component loadings

	1	2	3	4	5
HD1234678	0.800	-0.417	-0.181	0.233	-0.235
HF1234678	0.626	-0.740	-0.076	0.075	0.170
HF1234789	0.645	-0.145	0.643	-0.304	0.130
HD123478	0.905	0.148	-0.272	0.024	-0.271
HF123478	0.900	0.274	0.238	-0.103	-0.165
HD123678	0.881	0.248	-0.334	0.005	-0.150
HF123678	0.912	0.296	0.166	-0.148	-0.145

HD123789	0.865	-0.116	-0.392	-0.079	-0.020
HF123789	0.630	0.336	0.507	0.183	0.005
PD12378	0.707	0.427	-0.480	-0.052	0.173
PF12378	0.671	0.071	0.561	-0.027	0.414
HF234678	0.965	0.022	0.047	-0.062	-0.144
PF23478	0.745	0.451	0.044	0.057	0.061
TD2378	0.256	0.430	-0.365	0.359	0.684
TF2378	-0.050	0.099	0.365	0.884	-0.236
OCDD	0.695	-0.654	-0.129	0.192	0.085
OCDF	0.624	-0.717	0.091	0.016	0.188

Variance Explained by Components

1	2	3	4	5
9.209	2.642	1.974	1.183	1.037

Percent of Total Variance Explained

1	2	3	4	5
54.172	15.543	11.610	6.961	6.098

Rotated Loading Matrix (VARIMAX, Gamma = 1.0000)

	1	2	3	4	5
HD1234678	0.579	0.759	0.041	0.184	-0.091
HF1234678	0.131	0.967	0.145	-0.078	0.013
HF1234789	0.155	0.315	0.883	-0.136	-0.201
HD123478	0.937	0.304	0.132	0.033	0.039
HF123478	0.762	0.127	0.614	0.051	-0.057
HD123678	0.932	0.230	0.127	-0.030	0.180
HF123678	0.799	0.117	0.580	-0.015	-0.022
HD123789	0.751	0.540	0.070	-0.197	0.152
HF123789	0.404	-0.010	0.716	0.344	0.075
PD12378	0.798	0.054	0.066	-0.205	0.509
PF12378	0.159	0.249	0.897	0.024	0.225
HF234678	0.770	0.402	0.450	0.000	-0.035
PF23478	0.687	-0.009	0.454	0.086	0.287
TD2378	0.195	-0.027	0.030	0.047	0.969
TF2378	-0.081	-0.028	0.054	0.986	0.020
OCDD	0.263	0.942	0.102	0.045	0.041
OCDF	0.075	0.919	0.298	-0.084	-0.044

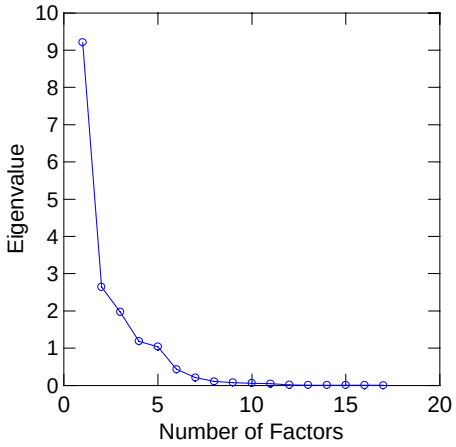
"Variance" Explained by Rotated Components

1	2	3	4	5
5.917	4.037	3.386	1.254	1.451

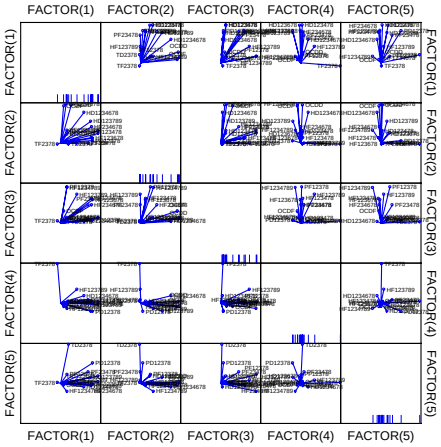
Percent of Total Variance Explained

1	2	3	4	5
34.807	23.747	19.919	7.376	8.534

Scree Plot



Factor Loadings Plot



Appendix F

Literature Survey of Emaciation for Great Horned Owls

REDISTRIBUTION OF ORGANOCHLORINES INTO THE LIVERS OF EMACIATED BIRDS

The literature on the redistribution of organochlorines (OCs) that occurs in birds that become emaciated, especially in situations where emaciation results from dieldrin poisoning, was studied. We did not find papers that reported laboratory studies on the redistribution of PCDD/Fs in birds, but we found four papers that are relevant to the situation faced by the BAS in interpreting the residues of PCDD/Fs in the livers of emaciated owls (presumably poisoned by dieldrin) on site. Here we summarize each of the papers individually and then make an over-all assessment.

Stickel et al. 1966

Part of this paper reports results from an experiment in which Japanese quail were exposed to various dietary concentrations of dieldrin. When half of the birds in each dietary group had died of dieldrin poisoning, the remainder were sacrificed. The sacrificed birds had been exposed, on average, for longer than the birds that died, and thus had slightly higher tissue residues. Otherwise, the birds killed by dieldrin poisoning and sacrificed groups were comparable. Thus, if allowance is made for the higher initial residues in the sacrificed group, the two groups represent birds before and after the process of hypophagia and emaciation that results in death from dieldrin poisoning. A complicating factor is that the birds were divided into three groups exposed to different dietary concentrations (10, 50, and 250 ppm dieldrin, dry weight, in the diet); the dates of death were correspondingly different (50–153 days, 9–72 days, and 5–14 days, respectively). Hence, although the total intakes and body burdens were comparable among the three groups, the schedules of exposure were different. For this analysis, Stickel et al. pooled birds from the three dose groups, recognizing that they are not strictly comparable. Information on tissue residues was presented only for males. Data from a fourth group exposed to dieldrin at 2 ppm in the diet were not used because none of the birds died.

To compare tissue residues in birds before and after the process of emaciation and death, we estimated the total body burden in each bird by multiplying the total body mass at the time of death or sacrifice (from Table 8-I in the study) by the concentration of dieldrin in the carcass remainders (from Table 8-III in the study). This requires the assumption that the average dieldrin concentration in the tissues removed from the carcass (liver, brain, beak, feet, skin, and gastrointestinal tract) were similar (or at least proportional) to those in the carcass remainders. This procedure yielded the following data for the 18 individual males for the data reported (D = died and S = sacrificed) as shown in **Table F-1**.

Table F-1. Dieldrin liver concentrations per dosage

Bird No.	Dosage (ppm)	Day of Death	Est. Body Burden (μg)	Liver, Dieldrin % lipid	Liver, Dieldrin conc (ppm)	Liver Lipids, Dieldrin (ppm)
613	250	5 D	1,033	1.57	18.0	1146
614	250	8 D	1,241	1.21	14.8	1233
615	250	9 D	2,099	1.92	16.0	838
616	250	9 D	547	1.20	25.9	2176
624	50	9 D	538	1.28	19.8	1545
625	50	20 D	1,905	1.45	29.1	2007
626	50	28 D	3,086	2.71	51.7	1915
635	10	50 D	756	1.91	5.7	300
820	10	143 D	1,804	1.05	24.0	2317
826	10	146 D	2,341	0.49	-----	-----
618	250	11 S	4,870	7.70	48.7	633
619	250	11 S	1,535	5.03	15.0	300
627	50	30 S	5,825	3.32	36.5	1099
628	50	30 S	990	21.31	140.8	661
629	50	30 S	5,109	14.27	81.1	569
824	10	158 S	4,213	18.33	93.5	510
825	10	158 S	2,687	2.39	6.1	256
822	10	158 S	1,640	0.82	2.7	329

The geometric mean residues in the two groups are shown in **Table F-2**.

Table F-2. Geometric mean residues of liver dieldrin concentrations

	Carcass Liver Burden (μg)	Liver % lipid	Liver, Dieldrin conc. (ppm)	Liver lipids, Dieldrin conc. (ppm)
Died (N = 10)	920	1.65	19.7	1301
Sacrificed (N = 8)	1,650	9.14	28.8	491
Ratio (S/D)	1.79	5.54	1.46	0.38

Thus, the geometric mean body burden in the sacrificed birds was 1.79 times higher than that in the birds that died. This reflects the fact that they were exposed for longer than the birds that died within each dose group (third column in Table F-1). We make the assumption that the liver residues would have been smaller in the same ratio (1:1.79) at the times when the birds died in the same dose groups. Accordingly, we estimate the geometric mean concentration of dieldrin in the livers would have been about 16.1 ppm (28.8/1.79) at the time when the birds died in the same dose groups. Hence, the best estimate of the fraction by which liver concentrations increased during the process of dieldrin-induced starvation and death is 19.7/16.1, or a 1.2-fold increase. The reason why this factor is so small is that the percentage of lipid in the liver decreased by about the same factor (5.5) as the percentage of lipid in the carcass remainders (5.4).

This estimate is uncertain because of the assumptions that had to be made about differences in exposure, the pooling of data from the three dose groups, and the wide variability in tissue residues among individuals, even within dose groups (see **Table F-1**).

Robinson et al. 1967

In this study, domestic pigeons and Japanese quail were experimentally poisoned with dieldrin. The quail study provided no data on liver residue concentrations that can be used to help address the emaciation issue at RMA. There were seven groups of dosed groups of pigeons, but six of these groups provided no information of use to the RMA issue with owls because (i) single doses were used, with consequently uninterpretable pharmacokinetics, and (ii) all doses killed all birds. Thus, comparisons of residue levels between live and dead birds was not possible.

The most relevant component of this study is the group of pigeons exposed to 50 ppm dieldrin in the diet (n = 7). For birds that died (n = 3) due to dieldrin exposure, the mean time to death was 90 days, and the geometric mean concentration of dieldrin in liver at death was 62.1 ppm (Table 4 in the study). For comparison, the birds that survived (n = 4) had a mean concentration of 22.9 ppm in the liver (Table 5 in the study). The birds that died had been exposed for only half as long (90 days versus 180 days) to dieldrin. Therefore, the concentration of dieldrin in their livers at the onset of dieldrin-induced starvation would have been between 0.5 and 1.0 times that in the survivors at 180 days, depending on the pharmacokinetics (1.0 if steady state had been attained at 90 days, 0.5 if the liver concentrations increased linearly from 90 days to 180 days). Therefore, the study suggests that dieldrin concentration increased by a factor between 2.7 (i.e., 62.1 ppm/22.9 ppm) and 5.4 (62.1 ppm/11.45 ppm).

Apart from the difference in exposure periods (and consequent uncertainty about the pre-starvation level in the liver), another important limitation of this study is the small sample sizes (n = 4, 3). Because the concentrations were widely variable within groups (ranging from 11.8 to 51.2 ppm in the four survivors), this leads to large statistical uncertainty in the derived ratios.

Ecobichon and Saschenbrecker 1969

DDT was administered to 5-week-old White Leghorn cockerels at three dietary concentrations (250 μg/day, 500 μg/day, and 1000 μg/day) for three time periods (15 weeks, 10 weeks, and 5 weeks, respectively). Each group was then divided into two sub-groups. One sub-group (n = 10 birds per dose level) received a normal ration of untreated diet, the other group (n = 10 birds per dose level) received a restricted (50% of normal food consumption) untreated diet.

The food-deprived birds fed the 1000 μg DDT/day (Group 3) and the 500 μg DDT/day (Group 2) responded very quickly to the effects of food restriction. Birds in Group 3 were all dead within 10 days; birds in Group 2 were all dead by Day 13. In contrast, food-deprived birds in Group 1 required a long time to respond, with one bird living 48 days after the initiation of the restricted diet. Despite the variability in time to death between and within groups, direct comparison of the food-deprived birds with their corresponding control groups is valid because one control bird was sacrificed on the same day that each food-deprived bird died.

Data summarized in Figures 1, 2, and 3 of the paper allow the following conclusions regarding the effect of food-deprivation on liver concentrations of DDT/DDE are shown in **Table F-3**.

Table F-3. Effect of food-deprivation on liver concentrations of DDT/DDE

Sample Group	Concentration of μg DDT/day	Approximate liver concentration of DDT/DDE
1	250	**4-fold increase**
2	500	**1.5-fold decrease**
3	1000	**1.8-fold increase**

De Freitas and Norstrom 1974

This was a pharmacokinetic study in which domestic pigeons were exposed to PCBs (Aroclor 1,2,5,4) and then subjected to various treatments which led to redistribution of residues within and among the body tissues. PCBs were administered in gelatin capsules at doses of about 8 mg/kg/day for 11 days. The most relevant comparison is between the "after-dosing" group (N = 6), which were fed uncontaminated food for 3 days post-dosing and then killed, and the "stressed" group (N = 6), that were fed for 3 days post-dosing, starved for 7 days in the cold, and then killed. Geometric mean PCB concentrations in the liver were estimated as 16 ppm in the "after-dosing" group and 64 ppm in the "stressed" group (Table 6 in the study), indicating a 4-fold increase during starvation. PCB concentrations were estimated in this study using "peak 15." This is only a minor component in Aroclor 1254, but was used as a reference because there was no evidence that it was metabolized. Hence, the ratio between the estimated PCB concentrations in the liver of the two groups should be a good estimate of the ratio of the concentrations of "peak 15," but not necessarily good estimates for other components of the mixture. Peak 15 was thought to be primarily a hexachlorobiphenyl. The main limitations of this study are (i) although starved, the birds did not die from starvation; and (ii) the exposure period was only 11 days. The exposure was insufficient to reach an equilibrium distribution in the tissue, especially for a hexachlorobiphenyl.

Overview

The four studies summarized above give a range of estimates of the degree to which concentrations of OCs in the livers of birds change during food-deprivation including dieldrin-induced starvation. These estimates range from a decrease of 1.5- fold to an increase ranging from 1.2- to 5.4-fold. However, it must be emphasized that all the studies had important limitations. The most important of these were (i) the small sample sizes (3–10 per dose group, largest in the study by Ecobichon and Saschenbrecker); (ii) the fact that none of the studies involved exposure to PCDD/Fs, but all involved exposure to other OCs; and (iii) the fact that none of the studies involved exposure of owls, taxonomically related species, or ecologically similar species. Nevertheless, we are impressed by the fact that all the studies yielded quantitatively similar results and that none of them suggested a large increase in OC concentrations in the liver during starvation. The conventional wisdom is that starvation should lead to mobilization of OCs and consequently to increases in the tissue concentrations of OCs. However, the data reviewed in this paper suggest that liver lipids are depleted at about the same rate as lipids in other tissues. Hence, mobilization of OCs during starvation apparently does not always lead to substantial increase in wet-weight concentrations of OCs in liver tissues.

For these reasons, we propose that it should be assumed that wet-weight concentrations of PCDD/Fs in the livers of great horned owls could remain about the same or increase up to 5-fold during the process of hypophagia and starvation that accompanies dieldrin poisoning. Therefore, the concentrations of dieldrin in the livers of dieldrin-poisoned owls could be divided by a factor from 1 to 5 for comparison with those of non-poisoned owls.

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Ecobichon, D.J. and P.W. Saschenbrecker. 1969. The Redistribution of Stored DDT in Cockerels Under the Influence of Food Deprivation. Toxicol. Appl. Pharmacol. 15:420–432.

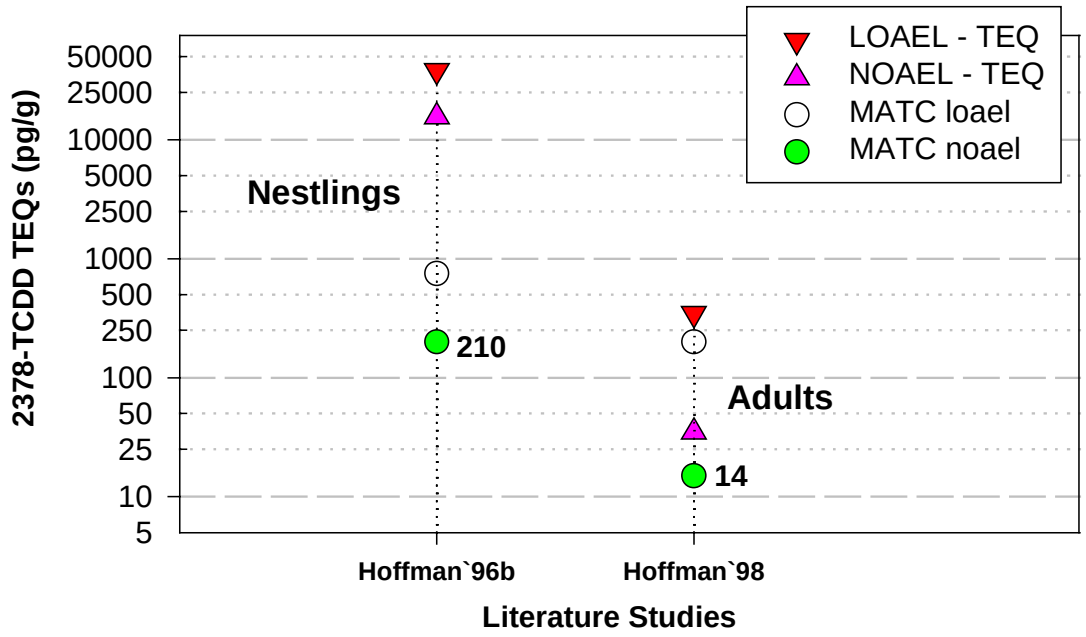
Robinson, J., W.K.H. Brown, A. Richardson, and M. Roberts. 1967. Residues of dieldrin (HEOD) in the Tissues of Experimentally Poisoned Birds. Life Sci. 6:1207–1220.

Stickel, W.H., L.F. Stickel, and J.W. Spann, 1966. Tissue Residues of Dieldrin in Relation to Mortality in Birds and Mammals. Chemical Fallout. M.W. Miller and G.G. Berg, eds., C.C. Thomas. Springfield, IL. Chapter 8, pp 174–204.

Appendix G

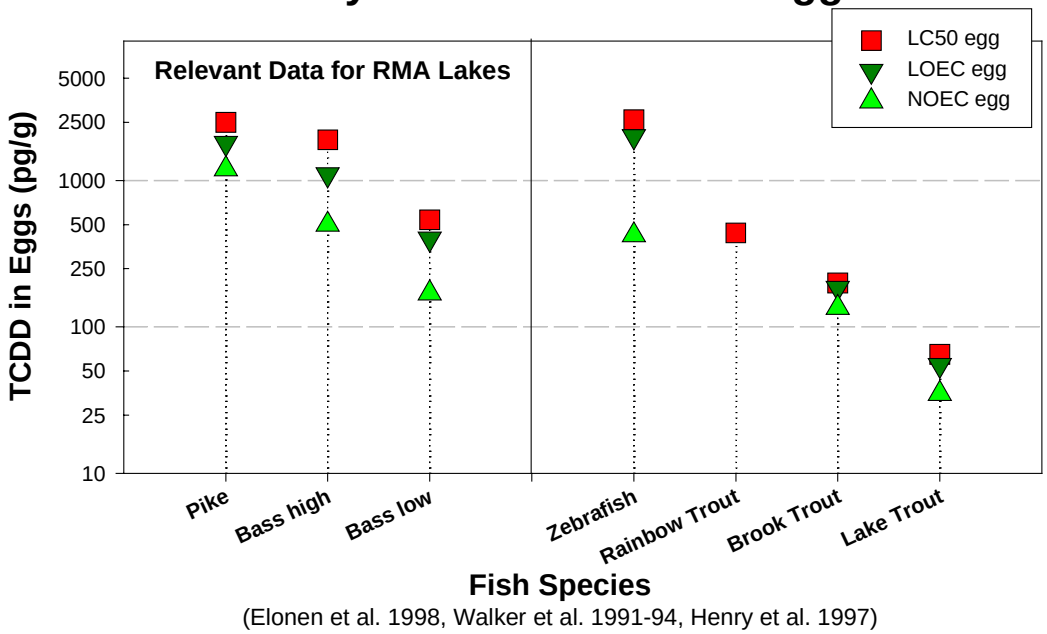
Toxicity Reference Values Derived for Biota in Tier I Field Study at RMA

Owl Liver Toxicity Data for TCDD MATCs at RMA



(from Kestrel Eggs, PCB-126)

Fish Toxicity Data for MATCs in Eggs at RMA



(Elonen et al. 1998, Walker et al. 1991-94, Henry et al. 1997)

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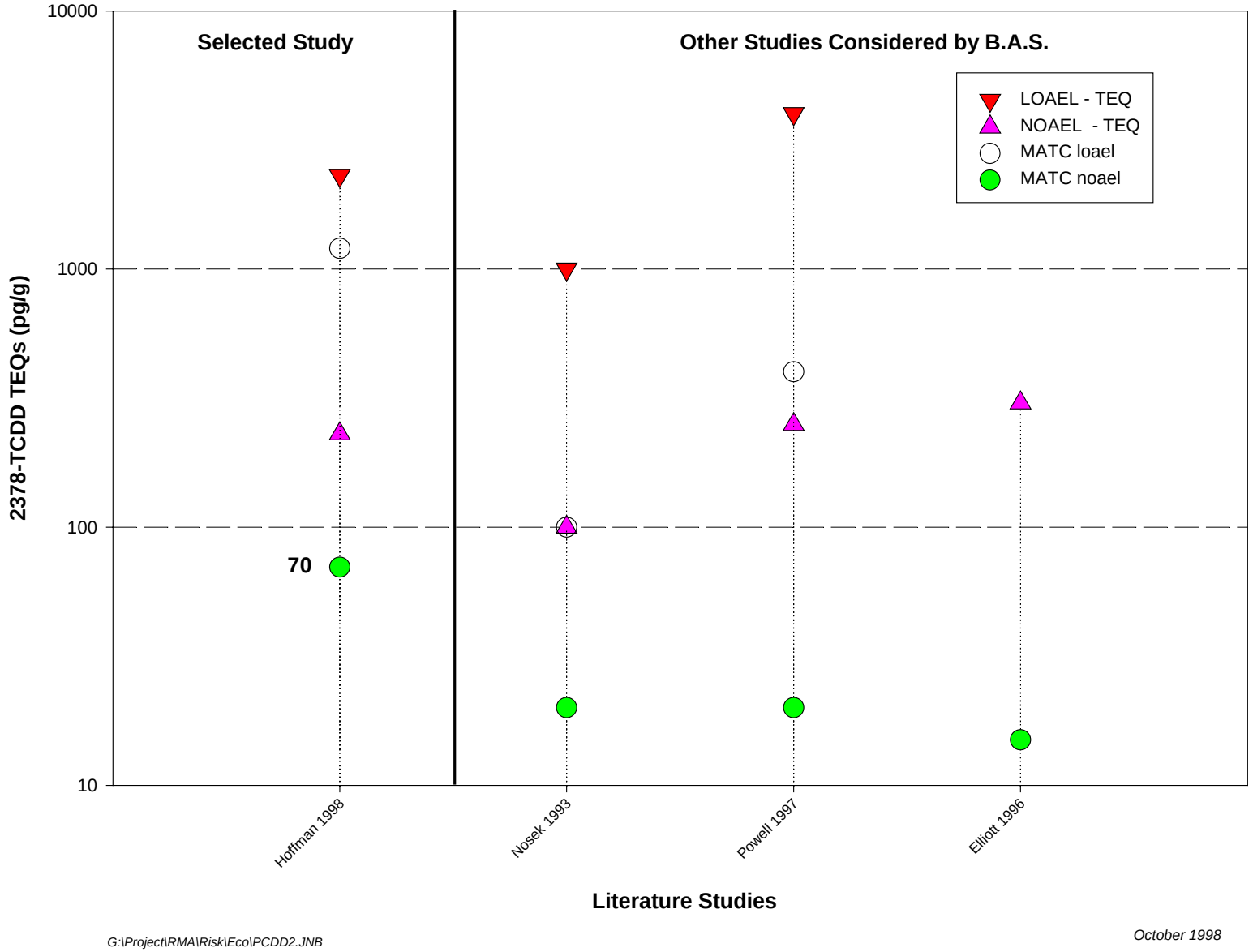
October 1998

Kestrel Egg Toxicity Data for TCDD MATCs at RMA



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October 1998